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No. 2576

United States
Circuit Court of Appeals
For the Ninth Circuit.

Transcript of Record.

JAMES B. SMITH, F. C. MILLS and E. H.
MAYER,

Plaintiffs in Error,

vs.

THE UNITED STATES OF AMERICA,
Defendant in Error.

VOLUME V.

(Pages 1537 to 1920, Inclusive.)

Upon Writ of Error to the United States District Court of the
Northern District of California, First Division.

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(Testimony of Edward Park.)

Q. Calling the four tubs a round. Mr. Mullan has so testified, Mr. Wilson has so testified, and so have a number of other witnesses for the defense testified that it was the custom to weigh four tubs at one time, one after another?

A. They only weigh four tubs at a time, and only four—sometimes only three—when the barge is stopped, we will say, the chute is blocked up, and the tubs are remaining there for ten minutes or a quarter of an hour; then if those tubs are even, not overloaded, then the weigher may possibly take four, but sometimes he will take three.

Q. Isn't it a fact, Mr. Park, that it has been the custom, almost invariable custom, for the custom-house weigher to call for four tubs to be placed upon the scales at a time and those tubs were weighed consecutively, one, two, three and four, before another tub unweighed was deposited into the bunkers of the ship? A. No.

Q. Has it ever been done? A. It has been done.

Q. Isn't it the general thing to do it?

A. No, certainly not.

Q. About how often is it done in, say, a working day? [1342—1280]

A. Well, as I said, if the barge is stopped, and those tubs are in the barge filled, and those tubs are correct, not overloaded, then they might weigh them; but not otherwise.

Q. Isn't it the practice, the usual practice, for the custom-house weigher to say, "On the scales," when he desires to weigh a tub, and tub No. 1 is weighed,

(Testimony of Edward Park.)

and then tub No. 2 is weighed, and then No. 3 is weighed, and tub No. 4 is then weighed, and thereafter the tubs are sent unweighed into the ship for a certain length of time, and then they go through the process again of weighing 1, 2, 3 and 4?

A. No, they will take one tub and weigh that, and then let two or three tubs go by, and then take another one, and in some cases they will take two tubs at a time, provided that they are not overloaded.

Each tub retains permanently the number given to it. The numbers are painted on the tubs or put on with chalk. Of course, a tub is occasionally out of order, and, in such instances, we might change its number. Otherwise, it retains its number the year through. Generally, after a tub has been out of order, it is given its own number when it comes back. Tubs are weighed for the purpose of ascertaining the tare sometimes twice a day if it is raining; once a day always. The tare is ordinarily taken when we commence weighing in the morning, but that depends entirely on the weather. If it rains in the afternoon we take a second tare then. I would not swear to the fact, but I would say that in all probability the various barges have on them the same tubs as in 1912. The tubs are of heavy iron and the rain sometimes leaves a kind of coating of fine coal on them. When we take a tare, however, we get the shovelers to clean the tubs off. Fine coal will stick to the tubs in spite of the rain unless [1343—1281] we do so.

Q. I see by your book here that you weigh each tub generally the same number of times; is that a

(Testimony of Edward Park.)

fact? For instance, in the case of the barge "Nanaimo" weighing into the "China," March 6, 1912, there were nine weights taken of each tub, one, two, three and four. Now, is that always the custom?

A. The custom for what?

Q. Is it always the custom to weigh each one of the four tubs the same number of times, that is, the tubs that are weighed for the purpose of fixing the average?

Mr. OLNEY.—Show him what you refer to, Mr. Sullivan.

Mr. SULLIVAN.—Q. I will ask you according to your recollection now?

A. Well, we weigh about the same number of times, but we don't weigh them all together.

Q. You don't weigh them all together?

A. No, we don't.

Q. Now, if you weigh No. 1 tub one time, do you mean to say that you will wait a little while and then weigh No. 2, and then wait another little while and weigh No. 3, and then another little time and weigh No. 4, or do you do this: Do you weigh No. 1 once, and then, after a given number of weights are taken, do you weigh No. 1 again?

A. They do not always weigh the same way; sometimes they will take No. 1 tub, and very likely they will take No. 4, when No. 4 comes up; they don't weigh them in rotation, one after another.

Q. After weighing No. 1 tub, do you weigh that No. 1 tub again before you weigh all the other tubs?

A. In many cases they will weigh No. 1 perhaps

(Testimony of Edward Park.)

twice, sometimes weigh No. 2 twice, and weigh perhaps No. 4, and No. 3 is not weighed; they vary, they don't always do the same. Their object [1344—1282] is to get a fair and square weight.

Q. Well, I will pick out the numbers here at random. Take the case of the "Wellington" discharging into the "Korea."

Mr. KNIGHT.—What date?

Mr. SULLIVAN.—February 16, 1912.

Q. Now, you see each tub is weighed the same number of times, isn't it?

A. No, that tub No. 1 is weighed once.

Q. No. 1 is weighed once?

A. You have got to multiply it by the number of tubs to get the weights.

Q. Take No. 2, 3, and 4, five times, isn't it, each one?

A. Yes, we took the same number of tubs, according to the orders of the custom-house weigher.

Q. Take another one at random here, say March 6, 1912. Now, weren't each one of those four tubs weighed nine times? A. Evidently, they were.

Q. Do these numbers up here, numbered 1, 2, 3 and 4, indicate that those four were weighed in a round, or weighed at separate times?

A. I could not swear to that right now.

Q. Look at your book, here, and, considering that each tub *was* a certain number of times, nine times, would you not say there was a round of tubs weighed at that particular time?

A. No, they might take them any way.

(Testimony of Edward Park.)

Q. We will take another one at random, here. Take the case of the discharge of the "Comanche" into the "Mongolia," April 5, 1912, was not each tub weighed five times on that occasion, that is, tubs numbers 1, 2, 3 and 4.

A. Each tub at different times had to be weighed, according to the number.

Q. Was not each tub weighed five times, that is, tub 1, tub 2, tub 3, tub 4—were they not each weighed five times? A. Evidently so. [1345—1283]

Q. Now, take another one at random, here. I pick out here October 2, 1911, and ask you if each tub was not weighed four times?

A. 16 weights were taken.

Q. Was not each tub weighed four times?

A. At different times.

Q. I show you another weight, taken on September 3d—is that 12 or 11? A. 11.

Q. Was not each tub weighed eight times on that occasion?

A. Yes, there was 32 weights taken; there had to be, on account of the number of tubs.

Q. Now, then, how does it happen that you weighed No. 1 once, and then weighed No. 3 another time, and then 1 again—how does it happen that you did that, when this gives you the weight of each tub the same number of times?

A. We have got to weigh them. We have got to get the weights, one in fifteen in each one.

Q. Now, I will show you a case of the discharge of the "Nanaimo" in to the "Manchuria," October 13,

(Testimony of Edward Park.)

1911, were not there six weights of each tub taken on that occasion?

A. Yes, those tubs appear that way.

Q. I will take another one here, September 15, 1911, and I will ask you if on that occasion, when the "Comanche" was discharged into the "Siberia" there were not seven weights taken of each tub on that occasion?

A. That all depends on the number of tubs—yes, there was. That is correct, 28 weights were taken, which the custom-house demands.

Q. Now, the practice is to add up the total of the weights, the four weights, in this case? A. Yes.

Q. And then—

A. (Intg.) Divide that amount by seven.

Q. Divide it by seven. That gives you the average weight of the coal in that tub, does it not?

A. Yes. [1346—1284]

Q. Then you deduct the tare? A. Yes.

Q. Which leaves the average weight?

A. The net.

Q. The net average weight of the seven tubs.

A. No, no; it leaves the net of No. 1.

Q. I mean of No. 1, that particular tub?

A. Yes.

Q. You find the four net weights, and then you add up the four net weights, don't you?

A. We add up the four net weights, and multiply by the number of tubs, provided they are equal.

Q. To find the gross weight of the coal?

A. To find the net weight of the coal; but they have

(Testimony of Edward Park.)

got to be equal tubs before you can multiply them by that.

Q. (Mr. KNIGHT.) That is, you mean there have to be equal weights taken of the tubs?

A. Yes, the tubs have got to have the same number of weights before you can multiply them.

Mr. McCUTCHEN.—That is to say, the same number of tubs of each number? A. Yes.

Mr. SULLIVAN.—A. Now, I see here in one of these books that on October 19, 1912, you discharged “Commanche” into the “Siberia.” Didn’t you on that occasion weigh each tub the same number of times? A. Thirty-two weights were taken.

Q. Now, this represents the correct tare of the tubs, don’t it, on that date? A. Yes.

Q. Now, tub No. 1 on the “Comanche” on that date weighed 615 pounds, did it? A. 615.

Mr. KNIGHT.—You are speaking of the net weight, Mr. Sullivan?

Mr. SULLIVAN.—No, the tare of the tub.

Q. What is that date? A. October 12.

Q. Now, will you look at September—that same tub was in use, was it not, in September and October of that year? [1347—1285]

A. Well, I couldn’t swear to that.

Q. Well, now, will you see what the tare of the tub was, according to this book here, on September 15?

A. It was not in the same month—the tare varies.

Q. Is that 650 or 630? A. It is 630.

Q. The tare of that tub in October is 615, is it not?

A. Yes.

(Testimony of Edward Park.)

Q. What was the tare of the tub No. 2 in October, 1912—was it not 620?

A. If it is down there 620, it was 620. The tubs vary repeatedly.

Q. Well, that is tub No. 2 on that date. Was not that same tub on the "Comanche," too, in September?

A. Well, there is a month's difference. They tare them every day.

Q. You take the tare of the particular tubs every day, but was not that particular tub No. 2 on the "Comanche" in the month of September and in the month of October?

A. Well, if it is in the book, there, whatever the tare is in that book, is correct, according to the custom-house officer.

Q. This tare here, October 19, was correct, 620?

Mr. KNIGHT.—They are a year apart. That is 1911.

A. This is 1911 and the other 1912.

Mr. SULLIVAN.—Q. All right.

A. You know the tubs vary.

Q. Were not the tubs on the "Comanche" in use a full year without being changed at all?

A. I would not swear to that.

Q. I show you the weight of the tub No. 3, on the "Comanche" on September 15, 1911; it was 585 pounds, was it not?

A. If it is in that book, that is it.

Mr. KNIGHT.—Q. Will you verify that?

A. 585, No. 3, [1348—1286] "Comanche," September 15, 1911.

(Testimony of Edward Park.)

Mr. SULLIVAN.—A year later, it was 550, was it not? A. I would not swear to that.

Q. On your book, here.

A. These weights agree with the Government weigher's.

Q. I know, but according to your book, here, it weighed only 550 pounds in October, 1912; isn't that right?

Mr. KNIGHT.—That is assuming, Mr. Sullivan, that it was the same tub.

A. I would not swear they were the same tubs; they often get out of repair, very often, and are patched up and fixed.

Q. Now, I show you in this book, on September 15, 1911, the tare of tub No. 4, on the "Comanche," was 770 lbs., was it not? A. 770.

Q. According to this book here of October 19th, 1912, the tare of that same tub was 660 lbs., was it not?

Mr. KNIGHT.—Of couse, Mr. Sullivan, I suppose it is understood that that means the tare of tub No. 4?

A. I couldn't swear to that.

Mr. McCUTCHEN.—And counsel is consistently putting into his question the suggestion that the same tub 13 months afterwards weighed so much and the witness has dozen times said that he cannot tell.

* * * * *

For instance, very often, if you take on a small barge, such as the "Nanaimo," she will sometimes break a tub. They don't always bring a small tub to replace it, they will bring a large tub, a tub that is

(Testimony of Edward Park.)

perhaps 150 lbs. or 100 lbs. larger, a large tub from the bunkers. Very often that is done, in a hurry to get a tub, they will send one from the bunkers which is a larger [1349—1287] and a heavier tub than the others.

Q. This book shows—

A. (Intg.) This book shows it exactly as the custom-house weigher gave it.

Q. This book shows that tub No. 4, on the “Comanche,” weighed 660 lbs., does it show?

A. That shows, on the 19th of October, 1912, that that weighed 660 lbs.

Q. And this book which I have in my left hand, bearing date September 15, 1911, shows that tub No. 4 on that date weighed 770 lbs., or 110 lbs. more; is not that the fact?

Mr. BLACK.—That is not the same tub.

Mr. SULLIVAN.—Well, we don't know whether it is, or not.

A. Well, I would not swear that that was the same tub. It possibly might have been a new tub.

Q. Do you think that the rain would swell the tub to such proportions that it would lose 110 lbs. in a year?

A. They might change the tub; that is often done. We often on those barges change the tub. They break down and in the hurry they send another tub. Sometimes they have extra tubs on the barges and sometimes they have not; they have to send down to the bunkers for them. But the Government weighers, the experience I have had with them, they are

(Testimony of Edward Park.)

the most careful men I have ever seen.

Q. The most careful men in the universe?

A. I didn't say in the universe. They attend to their business. I have had men with me for years that were just as honest and fair and square, and did what was right; I would not wish to have better men. That was my experience with them for years. Men of experience, men who have been weighing coal for years.

Q. Now, I take up another book here, dated April 4, 1912, I [1350—1288] think it is, is it not?

A. Yes, that is April 4, 1912.

Q. What is that—is that Wellington? A. Yes.

Q. Wellington coal ex "Theobold"?

A. Yes sir, April 4, 1912.

Q. Now, I will ask you, Mr. Park, when that boat was discharged if they didn't weigh each one of the tubs, 1, 2, 3 and 4 the same number of times, eight times each?

Mr. KNIGHT.—When you speak of the witness weighing the tubs, Mr. Sullivan, you mean the custom-house officers, I suppose?

Mr. SULLIVAN.—Yes. He takes part in the weighing.

Mr. KNIGHT.—He checks off.

A. I don't touch the beam, I don't touch the scales at all.

Mr. SULLIVAN.—Q. You look at the scales though and make a note of the weight?

A. Yes, certainly I do that.

(Testimony of Edward Park.)

Q. Do you wear glasses when you are taking the weight?

A. No, sir. I wear glasses just at a distance; my eyesight I am happy to say is good.

Q. When the weight is being taken you look always at the scale, do you?

A. I always look at the scale.

Q. You always look at the scale, do you, and without glasses?

A. Yes, repeatedly. Sometimes on a dark day I might put my glasses on to look at the scales.

Mr. McCUTCHEN.—Mr. Sullivan, do you claim that there is any difference between this record and the record of the custom-house weigher?

Mr. ROCHE.—Of course not. The witness testified that they compared notes and saw that they tallied before they left there at night.

Mr. SULLIVAN.—Certainly. Somebody would lose his job if they didn't agree.

Q. How old a man are you, Mr. Park, if you are not ashamed to [1351—1289] answer the question? A. Well, what do you think?

Q. Oh, about 70? A. No, not quite that.

Q. Close on to it, aren't you?

A. Well, 65 or 66.

Q. Will you say that on this occasion these tubs were not all weighed—that is, tub No. 1, if there was not a round of tubs, 1, 2, 3 and 4 weighed first at one time? A. Oh, I couldn't tell that now.

Q. Well, look at your book there?

A. That don't show anything. I would not swear

(Testimony of Edward Park.)

to that because the custom is to weigh the tubs at different times, and at any time, and to take any tub; you don't take them in rotation, you take any tub; you might take tub No. 4, or Tub No. 3, or tub No. 2, but you have got to get your 15 weights in.

Q. You are still positive that there is not a round of four tubs weighed, as a general thing?

A. I am telling you the truth, just exactly as we have done it, and I am telling you that sometimes they will weigh four, provided they are not overloaded. The custom-house officers know what coal is; they have been at it all their lives, and they are remarkably fine men; I have not a word to say against one of them; every one of them knew their duty, and I don't think I had a word with any of them. On many steamers we would never have a single word because they knew what they were doing perfectly well.

Q. When weighing on the scales, do you always get the exact number of lbs. of the tub and contents?

A. As near as possible.

Q. What do you call as near as possible; within how many lbs. would you say is as near as possible?

A. Sometimes they will weigh within 5 lbs., give and take. [1352—1290]

Q. How do you weigh, upon a rising beam or a falling beam? A. Halfway between.

Q. Even beam?

A. Even beam; sometimes it may be just a fraction, but it is so near even that it is about even.

Q. And you say it varies about 5 lbs. either way,

(Testimony of Edward Park.)

or it might? A. Yes, sir, give and take.

Q. I show you here in this book showing the discharge of the barge "Nanaimo" into the "Korea"; each tub was weighed six times was it not?

A. Yes, sir.

Q. Now will you explain this phenomenon, how tub No. 4 weighed just exactly 1,600 lbs. the first three weights taken, the tub and contents?

A. That happens very often.

Q. And how it happens that the next two tubs weighed just even 1570 lbs.?

A. That happens very often indeed, when it is light coal, like the Japanese coal, it very often runs that way. Sometimes we have three tubs that weigh exactly the same; that comes very often.

Q. You say that comes very often?

A. Oh, yes, it does. If you will look in the book there you will find any amount of them that are so close that there is hardly 10 lbs. between.

I would say that a shovelful of coal would weigh about 200 pounds.

Q. Will you explain this phenomenon here, appearing on this page here, showing the discharge of the Wellington in August, 1913; the fourth tub, weighed twice, weighed 2240 lbs., just an even ton; the next two weights were 2250 lbs.; two of them weighed just an even ton right down to the shovelful? A. That is correct. [1353—1291]

Q. How did it happen, do you know?

A. Because it weighed exactly that.

Q. Because it weighed exactly that?

(Testimony of Edward Park.)

A. That agrees exactly with the Government weigher, and that is the weight that it was exactly.

Q. Was there any guessing done about that time by either or the custom-house weigher?

A. I don't do any guessing.

Q. Does the custom-house weigher do any guessing in making these entries?

A. Those men don't do any guessing; those men know their business.

Q. That is August 20, 1913, isn't it?

A. Yes, August 20, 1913.

Q. Get me a discharge from the "Wellington" in this book, will you?

A. This is from the "Wellington" to the "Korea."

Q. What is the date of it? A. December, 1912.

Q. This one is August, 1913, here, and this is December, 1912? A. December 24, 1912.

Q. Now, on December 24, 1912, the tare of tub No. 1 on the barge "Wellington" was just 720 lbs., was it not? A. That is correct.

Q. And in August, 1913, the tare was 810 lbs., the tare of tub No. 1?

A. No. 1 was 810 lbs.; that was August, 1913.

Q. Can you explain how that tub increased in weight 90 lbs., during that period of time, if it happened to be the same tub?

Mr. KNIGHT.—That is objected to upon the ground that it is the same bucket, and the witness has said repeatedly that he could not state whether it was the same or a different tub.

(Testimony of Edward Park.)

The COURT.—That is true.

A. I could not swear to that at that length of time apart; it [1354—1292] might have been repaired. I could not swear it. They changed the tubs so often when they are out of repair.

Mr. SULLIVAN.—Q. In August, 1913, tub No. 2 weighed 700 lbs., did it not, tub No. 2 on the “Wellington”? A. Yes, sir, 700 lbs.

Q. And on December 24, 1912, tub No. 2 weighed 725 lbs.? A. No. 2 weighed 720 lbs.

Q. Is that 720? A. Yes.

Q. I think I made a mistake before. Tub No. 1 on December 24, 1912, the tare of tub No. 1 on that vessel at that time, was 710 lbs., was it not?

A. On December 24, 1912, the tare of tub No. 1 was 710 lbs.

Mr. McCUTCHEN.—These comparisons are all more than a year apart, Mr. Sullivan.

Mr. SULLIVAN.—One is August, 1913, and the other is December, 1912.

The WITNESS.—But you can't tell about that, because the tubs are broken down and are repaired very often, very often indeed.

Q. The tubs on the “Wellington” are all the same shape, are they not?

A. Oh, they are all about the same shape.

Q. And the same size?

A. Very near; there is a slight variation.

Q. The tubs on each of the other barges are of the same size, are they not, and approximately the same weight?

(Testimony of Edward Park.)

A. Yes, sir, the tubs on the smaller barges are about one size.

Q. The purpose of the company is to have the tubs as nearly equal as possible, on each barge, as to carrying capacity, is it not?

A. Yes, sir, but very often a tub will break down and they will send another tub to take its place.
[1355—1293]

Mr. KNIGHT.—Just a moment; we object to that, if your Honor please, asking what the purpose of the company is. The question is here, what was the fact?

Mr. SULLIVAN.—Q. As a matter of fact, Mr. Park, the tubs are of nearly the same weight on each barge, are they not? A. Very nearly.

Q. And as a matter of fact, the tubs on each barge contain approximately the same quantity of coal when filled to the water line, as you call it?

Mr. McCUTCHEN.—That would depend on many conditions, Mr. Sullivan; it would depend on the character of the coal?

A. Certainly it does. If it is Japanese coal or if it is Comax coal, there is a great difference.

Mr. SULLIVAN.—Q. Well, the cubical contents of each tub on each barge is about even?

A. Pretty nearly so.

Q. And the tubs are all made of the same material?

A. They are made of iron or steel; some are steel are iron.

(Testimony of Edward Park.)

Q. Those on the "Wellington" are all iron, aren't they?

A. I would not swear to that; they are either iron or steel, I would not swear which, I couldn't do it.

Very frequently I would work overtime. I remember being on one of the barges on December 18th, 1912, when the "Korea" was being loaded. We worked all night. I remember testifying on direct examination that the tubs were evenly filled on that occasion. The barge was the "Wellington." I believe it was another barge that worked in the daytime in the coaling of that vessel. The barge discharging on the day preceding the night of the 18th, according to my books here, was the "Theobold." I was presumably taking tally then. I was, to the best of my [1356—1294] belief, on duty during the entire period from the time when the "Theobold" commenced discharging up to the time the "Wellington" finished discharging the next morning. I am not quite sure, however, about the "Theobold." I am certain I was on the "Wellington." The entries of discharge from the "Theobold" are in my handwriting. The custom-house officer commenced at the usual time, 7 o'clock, on the morning of the 18th. I was on duty then. The entries showing the discharge of the "Wellington" at night into the "Korea" are also in my handwriting. I was therefore on duty nearly 24 hours. That does not occur very often, but sometimes. On such occasions I would sleep in the chair between 12 and 1 o'clock at night. The men go to a restaurant, but I stay on

(Testimony of Edward Park.)

the barge, bringing my lunch with me. The entries at 5 o'clock on the morning of the 19th appear to be as well written as those of the previous day. They are in the same hand as the others. I wrote them all. Four weights were taken that night.

Q. I see the tub 1 is 710 lbs., December 18, 1912?

A. Well, whatever is in that book is correct because I had one of the finest men on the force with me—I had two of them.

Q. Who was that?

A. Mr. Finnegan was one of the finest on the force.

Q. And is he still on the force?

A. You bet he is.

Q. And he has been on for many years?

A. Yes, sir, and he is a cracker-jack.

Q. He is a cracker-jack, is he? A. Yes.

Q. He knows how to weigh coal, does he?

A. You bet your life he does. I am very happy to say that the weighers I have had with me during my term with the Pacific Mail Company were A No. 1 men. If they had not been they would have been reported in [1357—1295] about 5 minutes to Mr. Chisholm.

Q. Oh, Mr. Chisholm is your boss, is he?

A. Yes.

Q. He is another fine man, isn't he?

A. Well, I have nothing against him. I have found him right at the steamer repeatedly, both in the daytime and the night, and if anything was wrong I wouldn't be there 5 minutes.

(Testimony of Edward Park.)

Q. You always get along very agreeably with those weighers, don't you?

A. Yes, sir. Why shouldn't I? They did their duty and I tried to do mine and between us I don't think there was any trouble.

When I worked all night on the 18th, I do not think I used my glasses to see the weights; I only use them when it is dark or steamy. My eyesight is very good. Three rounds of weights were taken up to 11 or 12 o'clock. The number of weights taken from 1 to 5 in the morning would be shown in a different place in the book. I think it was somewhere in the neighborhood of 5 or 6 o'clock when the "Wellington" quit discharging coal into the "Korea" on the 19th. It happens right through the book that tubs will weigh precisely the same number of pounds; that does not occur frequently, however. When the "Korea" and "Siberia" were being coaled, we usually worked at night. I do not know how many times I worked at night during the year 1913. We particularly have to work at night when the vessel is listing, and we have to even her up. I sometimes work from 22 to 24 hours when the "Korea" and "Siberia" are being laden with coal. The "Korea" is due about every two months, and the "Siberia" with about the same frequency. Once in a while we work all night on other vessels when a steamer is late coming in.

I always used to make out reports of the weights for the Western Fuel Company. The custom-house weigher does not do so. There is sometimes, but not

(Testimony of Edward Park.)

always, a tally clerk for the [1358—1296] Western Fuel Company on hand when we are coaling the Pacific Mail ships. The Western Fuel Company, however, relies on my report. I give these reports to the Western Fuel Company's foreman when he comes around. The Company has given me compensation for this service. That would be at Christmas-time, and that is the only time. They have never paid me any overtime. I think I have been receiving this compensation every Christmas for the last eight years, but there has been no compensation between Christmases.

Q. By the way, have you ever learned, while representing the Pacific Mail Company in seeing these weights taken, have you ever heard of complaints or learned of complaints that the barges almost invariably discharged more coal than went into the barges?

A. No, sir, I did not hear those reports.

Q. You never heard—

A. Well, I might have heard it once, but I have known many times when the clerk would come, and then they would tell me that the barges were 30 or 40 tons short.

Q. Many times? A. Well, repeatedly.

Q. Did you hear that the barges were 30 or 40 tons short more often than you heard that the barges were 30 or 40 or 100 tons over?

A. Well, I never knew the amount of coal that was in the barge when it came.

Q. Didn't you hear, in the performance of your duty, or did you not learn, that in 90 or 95 per cent

(Testimony of Edward Park.)

of the cases the barges turned out a great deal more coal than went into the barges?

A. I cannot say that I have.

Q. Did you hear on more than one occasion that the barges turned out more coal than they had received? [1359—1297]

A. Well, I cannot say that I have; I cannot remember that I ever heard that the barges ran over. It was never reported to me.

Q. And you never heard it at all?

Mr. KNIGHT.—I submit, if your Honor please, that this hearsay information is not relevant. It calls for hearsay information on the part of the witness.

The COURT.—Of course that fact itself would not be relevant, but it might be a matter that would cause him to look more carefully into his weights.

Mr. SULLIVAN.—That is the theory upon which we asked the question.

A. When a barge comes to the dock I don't know the amount of coal that is in that barge until it is weighed. I am not told how much coal is in the barge. I don't know.

Q. Don't you know, as a matter of fact, from common rumor about the place where you are employed daily, that the barges almost invariably turned out more coal than they received?

* * * * *

A. Well, I would not swear to that. I may have heard it; I cannot say. I don't remember hearing

(Testimony of Edward Park.)

it, that the barges were turning out more, only lately, just lately.

Mr. SULLIVAN.—Q. That is, since these indictments were found. How often did the clerk report to you that the barges were turning out short, turning out less coal than went into them?

Mr. KNIGHT.—What clerk?

Mr. SULLIVAN.—He said some clerk reported to him.

A. Well, I remember distinctly when Mr. Mills was away sick that Mr. Eddie Powers came down to the dock with a statement and he told me that the barge was—I would not swear now to the amount, but it [1360—1298] was within 30 to 40 tons short, one barge.

Q. Is that the only time you ever heard complaints made, that the barge was turning out short?

A. No, sir; I have heard it at other times, that the barges were short in turning out.

Q. How often would that be?

A. Well, I could not exactly say. I have heard that the barges were turning out short.

Q. From whom did you hear that the barges were turning out short?

A. Well, I have heard from Mr. Mills two or three times that the barges were turning out short.

Q. And Mr. Mills complained to you about the barges turning out short did he?

A. Well, he told me about it, and I referred him to the weigher.

Q. Did he tell you not to let that occur again?

(Testimony of Edward Park.)

A. Nothing of the kind.

Q. But he was complaining at the time?

A. He told me that the barges had turned out short.

Q. And did Mr. Mills ever tell you that the barges turned out long or over?

A. He never told me anything about that.

Q. He never told you anything at all about turning out overages?

A. He told me repeatedly to keep my tubs even and that if any coal went overboard, to take as many tubs as I wanted to make the thing square.

* * * * *

Q. Did Mr. Mills make the statement about the barges turning out short in the presence of the hatch-tender?

A. Well, it was on the barge, so I presume that it must have been; they were all around together.

Q. Don't you know that the engineers of the Pacific Mail were contending and complaining, while you have been in the service [1361—1299] of the Pacific Mail, and for the last eight years, that less coal went into the ships under their charge than the records of the Western Fuel Company showed?

A. No, sir, I do not know that; I have had no complaint from the weighers, only I think two.

Q. I mean the engineers of the Pacific Mail Steamship Company, that they were being short-weighted in the coal that went into their ships?

A. Only on one or two occasions.

Q. From whom?

(Testimony of Edward Park.)

A. I think one was from Mr. Bunker, he didn't want to sign his coal receipt, he said he was some coal short.

Q. And who else did you hear complain?

A. I think Mr. Hamilton thought he was short of coal, or said he was; but those were the only two. Take the "Korea," for instance, a steamer that we give 3,000 tons of coal to, sometimes 2800, Mr. Rossiter, the Chief Engineer, has told me repeatedly that he got his coal; he was taking 3,000 tons every time.

Q. When a round of tubs is weighed, is the coal generally taken from one particular part of the vessel or the barge, that is, when they weigh four tubs together?

A. There are two men working aft and two men working forward; they cannot take it from any particular place; two tubs are aft and two tubs are forward.

Q. They take the contents of two tubs from one particular part of the vessel and the contents of two tubs from another particular part of the vessel?

A. No, sir, the two tubs won't be together; there will be one on one side and one on the other; some of the tubs will get what they call wing-coal, a coarse coal.

Q. When you are working amidships how many tubs are in that particular part of the vessel?

A. There are always four tubs going unless it is very, very slow; then they will only run three.

Q. Mr. Park, if a tub is filled to the waterline at the mouth [1362—1300] and filled, say, within a

(Testimony of Edward Park.)

couple of feet from the top at the bank, the tub only containing about three-quarters of its capacity, won't that tub tip by reason of the fact that the greater weight is at the mouth of the tub?

A. No, sir, they have got to be pretty full before they will dump; three-quarter tubs won't dump.

Q. Even if coal is filled to the waterline at the mouth, and is about 2 feet from the waterline at the back, you say it won't tip?

A. Oh, they keep their tubs even.

Q. I am assuming that they are kept even. Suppose we experiment with the tubs, as we did the other day, if a tub is filled to the waterline at the mouth and within 2 feet at the rear, won't that tub invariably tip on account of the superabundant weight at the front or mouth of the tub?

A. I have never seen a tub filled that way.

Mr. McCUTCHEN.—Do you claim that a tub could be filled that way?

Mr. SULLIVAN.—Yes, decidedly.

Mr. McCUTCHEN.—How would you hold the coal there?

Mr. ROCHE.—It will stay in the tub.

Mr. McCUTCHEN.—Yes, it will stay in the tub, but at that angle?

Mr. ROCHE.—Why, yes.

Mr. SULLIVAN.—Q. Wouldn't that tub fill that way?

A. I have never seen a tub filled that way. They have got to be full before they tip unless you break something or try to kill somebody down in the hold

(Testimony of Edward Park.)

or capsize the tub of coal into the hold.

Q. Do you know what would be the difference between a tub filled to the top with fine coal and a tub filled to the top with the [1363—1301] ordinary house coal—rough coal; say take one of these tubs of the “Comanche”?

A. You take a tub of fine coal and then take another tub of big lumps, lumps that they don't shovel in, but lumps that they put in by hand, large lumps, you will get from 180 lbs. or sometimes 200 lbs, difference between them; and then when a tub of lumps is piled up, the tub is not full, there are holes you could put your head in.

I have repeatedly seen the coal hosed down by employees of the Pacific Mail Steamship Company. That would occur when the coal is dry and would spoil the paint on the ship and interfere with the trimming. They generally use an ordinary ship's hose. They would play the water on the coal for quite a while until it got pretty wet to keep the dust down. I have called Mr. Chisholm's attention to that matter often, but it had to be continued for the reasons mentioned. I have repeatedly tried to get a reduction for the water from the Government, but the answer I always got was that the Government made no allowance for water. Mr. Chisholm knows that that is the situation.

Redirect Examination by Mr. KNIGHT.

The reason why we have to work at night on the “Korea” and “Siberia” is that after we have coaled a day or two on one side of those ships they take a

(Testimony of Edward Park.)

list to the other side and then we have to work at night to even the ship up; otherwise, we would be idle the next day. When I said a shovelful of coal would weigh 200 pounds, I was mistaken. My guess now is that it would weigh 20 or 25 pounds. During the last five or six years there have been 25 or 30 custom-house weighers engaged in weighing coal going into steamers belonging to the Pacific Mail Steamship Company.

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[1364—1302]

[Testimony of Fred Tietjen, for Defendants.]

FRED TIETJEN, a witness recalled for the defendants, testified as follows:

Direct Examination by Mr. KNIGHT.

Mr. KNIGHT.—Q. Mr. Tietjen, since you were on the stand here the other day, have you refreshed your memory as to the work which you performed on the Folsom Street scales for the Western Fuel Company?

A. I have, by looking over the records of the Fairbanks & Morse Company.

Q. Will you state whether or not, since 1905, you were engaged in any work on these scales for the Western Fuel Company?

A. I was. I have a copy of the different work that was done by Mr. Shaffer and myself at times. May 25, 1906—

Mr. SULLIVAN.—Q. (Intg.) Done by yourself,

(Testimony of Fred Tietjen.)

with Mr. Shaffer? A. With Mr. Shaffer.

Q. Or done by you at one time and Mr. Shaffer at another time?

A. Well, we generally worked together, and two of those jobs I certainly remember of doing alone.

Mr. KNIGHT.—Q. Will you state now, having refreshed your memory—you have a memorandum taken from the books of Fairbanks, Morse & Co.?

A. Yes.

Q. You took that memorandum off yourself, did you? A. I did.

Q. Will you state generally, Mr. Tietjen, what work was done on those scales of the Western Fuel Company since 1905?

A. I will; if you will allow me to read it.

Q. Yes.

A. May 25, 1906, time of mechanic patching levers in scale on south side of bunkers. Testing and adjusting scale. Time, Sunday, 1 day, 9 hours—Saturday and Monday nine hours.

Mr. ROCHE.—I understand, Mr. Knight, the witness is now referring to a time after the fire.

Mr. KNIGHT.—He testified that he did not do any work after [1365—1303] 1905.

Mr. ROCHE.—You say that he testified that he did not do any work after 1905?

Mr. KNIGHT.—That he did not work on these scales after 1905.

Mr. ROCHE.—The memorandum he is reading from shows work done in May, 1906.

(Testimony of Fred Tietjen.)

The WITNESS.—May, 1906, until the present time.

Mr. McCUTCHEN.—You brought out the fact that the Fairbanks, Morse Company had not done any work during that time, or anybody else.

Mr. SULLIVAN.—He testified as to September, 1905.

Mr. KNIGHT.—He said he did not do any work since the fire.

A. On July 7, 1906, sharpened and re-sealed the scale, that is, taking the scale out and repairing it.

Mr. SULLIVAN.—Q. Did you do that, yourself?

A. No; Mr. Shaffer. I probably worked with Mr. Shaffer at the time.

Mr. SULLIVAN.—We object to his testifying to anything that he, himself, did not do, we object to his testifying to any work Mr. Shaffer did, unless Mr. Shaffer worked with him.

The COURT.—Unless he knew Mr. Shaffer did it.

Mr. SULLIVAN.—The only way he can know is by being with him.

Mr. KNIGHT.—Q. Were you and Mr. Shaffer detailed for this character of work by Fairbanks, Morse & Company during these times?

A. Yes, we generally done mostly all the work together.

Q. Mr. Shaffer is the man whom you say is dead?

A. Yes. July 7, 1906, sharpened and re-sealed scale; that is, taking the scale out and overhauling it.

Q. You say "re-sealed"?

(Testimony of Fred Tietjen.)

A. Yes, that is the term we use, re-sealing the scale.

Q. Sharpened and re-sealed the scale?

A. Yes. [1366—1304]

Q. Will you state a little more specifically what that means, sealing the scales?

A. Sealing the scale is to adjust it and tighten up the bolts, and leave it according to what the United States weights call for—we call that sealing a scale.

Q. What was the date of the work?

A. July 7, 1906. We put new parts in the scale, two new knife edges, four bearing steels, 2 long lever nose irons. Those are parts put into the scale. On July 12, 1906, we tested the coal scales on bunkers on the south side of the bunkers.

Q. That is all on these Folsom Street bunkers?

A. Yes. On July 21, we took out south tramway scales, and brought them to the shop and repaired them taking 54 hours.

Mr. SULLIVAN.—Is that July 21st?

A. July 21st. In that scale were put four bearing steels, 2 long lever nose irons, and 2 steel yard-rod shackles. On September 8, 1906, wagon scale, sharpened—

Mr. SULLIVAN.—Of course, that is immaterial. That is a wagon scale.

Mr. KNIGHT.—Q. Is that the scale that is in front of the office on Stewart Street?

A. That is in front of the office.

Q. All we want, Mr. Tietjen, are the bunker scales.

A. Then we have September 20, 1906, on the Mis-

(Testimony of Fred Tietjen.)

sion Street bunker.

Q. September 20, 1906?

A. Time of mechanic adjusting and sealing, at Mission #2. On October 24, 1906, time of mechanic, one hour, Folsom Street wharf. October 27, 1906, time of mechanic sealing and testing and adjusting scales, four hours.

Mr. ROCHE.—Q. What scales is that?

A. That is the Folsom Street scales. December 1, 1906, tested scales at Folsom No. 2, north side, tramway, 2 hours. December 21, 1906, Folsom No. 2; one hinge for bunker track scale; repaired new truss rod, [1367—1305] fitted, and new parts fitted in scale and adjusted, 11 hours. February 5, 1907, 1 compound suspension scale repaired, cleaned, sharpened and re-sealed, 10 hours. That is for a barge scale.

Mr. KNIGHT.—Q. That was a platform scale on the barge? A. A suspension scale on a barge.

Mr. SULLIVAN.—That is immaterial.

A. January 30, Webster Street wharf. Time of mechanic testing scale, removing, patching and repairing, 2 days.

Q. We do not care for that.

A. February 14, 1907, barge "Ruth," Mission #2.

Q. You may confine yourself to the Folsom Street bunkers, if you will, the platform scales on the top of the bunkers.

A. Here is March 15, 1907, Folsom #2, 1—1166 scale repaired, new parts fitted—that is the number

(Testimony of Fred Tietjen.)

of the scale, the scale that is operated on Folsom Street.

Q. The scale they use on the barge? A. Yes.

Q. I do not want any barge scales, I only want the Folsom Street bunker scales.

A. April 24, 1907, Folsom #2 bunkers, time of mechanic testing scales with 1 ton of weights, 2½ hours.

Q. What date is that?

A. That is April 24, 1907. April 29, 1907, Folsom #2 bunkers, time mechanic testing scales, tested with 1 ton of weights and sealed, correct. July 5, 1907—that is Stewart Street, that is the same thing, that is a barge. September 30, that is another one. On March 11, 1908, tested scales at bunkers Folsom #2.

Q. Is that the scale on the bunkers, or on the barge?

A. On the bunkers, Folsom #2, tested scale on east and west side, 2 hours. July 24, 1908, examined scales at Folsom #2. [1368—1306] It had stopped weighing; Shaver early A. M. 24th. Examined two tramway scales, and adjusted. September 1, 1908, examined bunker scale, Stewart Street; repaired and adjusted as necessary. Shaver 3 P. M. testing bunker scales at Stewart Street; January 26, 1911, Folsom dock, sharpened scales. February 10, 1910, 1 nose iron, Folsom Street wharf. June 28, 1911, 1 hinge lever, 1 butt lever loop, 1 corner iron, 1 ten-inch corner iron.

Mr. ROCHE.—Q. Where was that?

A. That was Folsom Street. July 30, 1913, tested

(Testimony of Fred Tietjen.)

north side bunker scale, 10 pounds quick adjusted.

Mr. SULLIVAN.—That is 1913?

A. Yes. Tested north side bunker scale, 10 pounds quick adjusted, O. K. South side bunkers, levers were patched. That is the report that I have.

Cross-examination by Mr. SULLIVAN.

The memorandum which I have been using was made up by me in my own handwriting from the books of Fairbanks, Morse Company. The only items that I am perfectly certain refer to repairs that I made myself alone are two in number; July 21, 1906, and March 11, 1908. On the other items we worked together, probably. [1369—1307]

[**Testimony of S. W. Parr, for Defendants.**]

S. W. PARR, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. OLNEY.

I reside in Urbana, Illinois, and am now and have been for a little over 23 years Professor of Applied Chemistry in the University of Illinois. The duties of a professor of applied chemistry as distinguished from those of a professor of chemistry have to do with chemistry as it relates to practical and industrial affairs. I have made a special study of the subject of coal. I took up that study in 1896, 1897 or 1898, and most of my work in the professorship of applied chemistry has been in connection with coal since that time. The coal mining industry is important in Illinois, which state surpasses all other states in the Union in coal output except occasion-

(Testimony of S. W. Parr.)

ally West Virginia. As a rule, however, Illinois exceeds even West Virginia. In the course of my above-mentioned study of coal I have published twelve bulletins on the subject covering such topics as storage of coal, spontaneous combustion, firing of coal in operation, weathering of coal, deterioration, composition of coal ash, the compositions of Illinois coals and their properties (three bulletins), calorimetric heat value determination, etc. I have invented a number of devices for use by engineers primarily to give them trial of the property and character of coal. Those devices are in common use. I have the inspection of coal purchased for the State Institutions of Illinois. The duties of that coal inspection are to decide upon the value and properties of coal with a view to determining whether it should have penalties or premiums attached to it in settling with the coal operators, for if the coal has ingredients above a certain percentage [1370—1308] stipulated in the contracts of purchase it is my business to find out the same and report that to the board. The amount of coal purchased by Illinois for her state institutions ranges from 225,000 to 250,000 tons annually. In regard to my experience in a practical way in dealing with coal, I would say that I am sometimes called as a third party or umpire in settling disputes between operators and users. I think probably I have acted in that capacity half a dozen times in the last fifteen years. In this period I have made or supervised the examination of mines, and, under the direction of the State Geological Survey of Illi-

(Testimony of S. W. Parr.)

nois, have had prescribed the method of collecting the samples and deciding upon the quality and character of the coal furnished to the state. I have made or supervised something over 500 such examinations. I am a member of the American Society of Testing Materials. I am chairman of a committee of that society, namely: the Committee for Devising Standard Methods for Coal Inspection. These methods are standardized primarily for practical use, especially on the part of engineers, rather than for laboratory and scientific purposes.

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Q. Has the study and investigation of coal, and particularly of the properties of coal and the ingredients found in coal, been a subject of general investigation through the United States in the last few years?

A. I do not quite catch your question.

Q. Are there other people besides yourself, for instance, other universities or government agencies, making [1371—1309] a study of the properties?

A. There are.

Mr. ROCHE.—That question is objected to upon the ground, may it please the Court, that it is immaterial, it certainly does not tend to throw any light upon the qualifications of the witness upon the stand.

Mr. OLNEY.—It is a preliminary question, and it has a bearing upon the question of information

(Testimony of S. W. Parr.)

which the defendants in this case might have in regard to inferences to be drawn from an overage.

Mr. ROCHE.—But the answer to that is, may it please the Court, of course, that the defendants in this case, who were acting in good faith, as they apparently claim they were, would have a right to testify on direct examination to what their information was upon these subjects.

The COURT.—The objection will be sustained. The fact that they might have obtained information, does not raise any presumption of innocence.

Mr. OLNEY.—I think, if the Court please, if as a matter of general investigation, and a matter of general information in the community, there is a presumption that they were informed in regard to these matters, it would not make any difference; it is a matter of general information and investigation.

The COURT.—What do you mean by general investigation? If it is so general that everybody should know it, then there is no occasion for him to testify at all on that subject.

Mr. OLNEY.—If your Honor please, everybody is not a coal man; I am holding this down now, to people engaged in the coal business; or, at any rate, to people [1372—1310] who are making a study of the subject.

The COURT.—Let him testify as to what he knows. If you have any other witnesses to testify to what they know, you can call them. The objection will be sustained.

Mr. OLNEY.—An exception.

(Testimony of S. W. Parr.)

Mr. ROCHE.—I ask that the answer be stricken out. I believe the witness answered before the objection was made.

The COURT.—Let it go out.

The investigations into the properties of coal which I have made have been concerned with changes in the weight of coal from time to time in the course of transportation, storage and marketing. I have made a study of coals generally in the United States which study has touched all coal-producing districts excepting a few small places in California or west of the Sierras. My study has covered all the fields east of the Sierras. As to foreign coals, I have worked with Welsh, English, Belgian and German coals, and I have some slight acquaintance with the coals of India. I have examined the Canadian coals east of the mountains and to a certain extent west of the mountains, and I have also examined Australian and Japanese coals. Coals are very subject to changes in weight in process of shipment, probably more so than any other commercial commodity. These changes are considerable in amount and take place within short intervals of time. There are two main causes for such changes in weight, one of which is oxidation and the other of which is changes in moisture content. That is true of all coals. [1373—1311]

BE IT REMEMBERED that thereupon the following testimony was given, and that the following proceedings occurred:

“Q. (Mr. OLNEY.) Is there any literature on

(Testimony of S. W. Parr.)

this subject, that is, have the results of this study into the characteristics of coal in this respect as to changes in weight been put in published form?

Mr. ROCHE.—Just a minute. That is objected to as immaterial, irrelevant and incompetent; and upon the further ground that if this evidence is sought to be introduced for the purpose of showing the familiarity of any of these defendants with these published reports, their familiarity must first be established.

The COURT.—Yes, I think so.

Mr. OLNEY.—We want to show something of the general condition of the art, and the general knowledge of the art in this respect. And regardless of whether the defendants themselves were acquainted with it, or not, we certainly have the right to show it, your Honor. It is introduced for that purpose; and for the purpose of showing that this witness' own conclusions are in accordance with the well-known investigation of other men upon that subject. Now, certainly all that goes to the weight and extent to which credibility is to be given to the witness' testimony, if it is material; it is something that is done every day in the courts. We have the right to prove the fact.

The COURT.—There is no question about proving the fact here.

Mr. OLNEY.—And I am showing not only that, your Honor, but also that this fact to which the witness is testifying [1374—1312] is a fact well known to the art, to the study upon this subject.

(Testimony of S. W. Parr.)

Certainly we ought to be able to prove that fact in connection with proving the statement of the witness himself.

The COURT.—It does not seem so to me. The result of this witness' investigations as a matter of fact as to whether coal will or will not change in weight is properly a matter for his testimony; but what other people may have ascertained by independent examination, in which he has had no part, does not seem to me to be material here. If this is a matter of common knowledge of which a court must take cognizance, then it is not a matter of testimony but a matter of information for the Court and the jury; but if it is not, then this witness can go no further than what he himself knows.

Mr. OLNEY.—Let me say this to your Honor, that it may well be that it is a matter of common knowledge by people who are acquainted with the subject, such that the Court could take judicial notice of; that even if the Court can taken Judicial notice of the matter, such as, for instance, the time on a certain day when the moon arose, still we claim that that is a matter that evidence can be introduced upon.

The COURT.—If the Court is going to determine it the Court must determine it upon its own investigation; it is not a matter that should be submitted to the varying judgment of twelve men.

Mr. OLNEY.—In many cases that sort of testimony is put before the jury.

The COURT.—That may be true and it may be put before the jury because nobody objects to it.

(Testimony of S. W. Parr.)

Mr. OLNEY.—And furthermore, if your Honor please, we would have the right in this case, I take it,—it was [1375—1313] practically admitted by counsel here the other day—to introduce scientific treatises on this subject.

Mr. SULLIVAN.—No, sir, nothing of the kind.

The COURT.—If there be such rule it is one that I have never heard of. But, of course, that is not saying that there is no such rule.

Mr. OLNEY.—I have authorities on the subject.

Mr. ROCHE.—The weight of authority is clearly the other way. On direct examination he has no right to introduce scientific works. He is called there for the purpose of giving evidence upon the very subject matter of these so called scientific works.

Mr. OLNEY.—On an examination of the rule, your Honor, you will find that the rule enunciated by Mr. Roche is practically confined to medical books, and they say that that is a science so uncertain as yet that they will not permit medical books to be introduced in evidence because of the uncertainty of opinions in that science. But that is not the case in connection with matters that have been definitely and finally ascertained by science. I think in that connection we have a right to go into the literature on the subject.

The COURT.—If that be true then there is no necessity of introducing a witness at all; all you have to do is to produce your books.

Mr. OLNEY.—You may have to do both.

(Testimony of S. W. Parr.)

The COURT.—I am not saying this in any spirit of levity at all, Mr. Olney, but if your contention be true, then there is no occasion to produce a witness at all; you can just produce your scientific books and introduce them.

Mr. OLNEY.—It may be that we will want to do both. [1376—1314]

The COURT.—If your contention be true you need not introduce the witness at all.

Mr. OLNEY.—That may be true. We may be entitled to simply rely on scientific works; we desire to do both things, as a matter of fact.

The COURT.—That may be true, but without some well-reasoned authority on the subject I am inclined to hold otherwise.

Mr. OLNEY.—This matter is taken up and discussed by Wigmore at considerable length. I am reading now from Vol. 3, Section 1690. The chapter is entitled, 'Exceptions to the hearsay rule.' Topic 9: 'Learned treatises.'

'This exception is usually spoken of as involving the use of "scientific books" or "medical books" or "books of science and art"; but the term "learned treatises" seems more accurate in indicating the scope of the doctrine. As an exception to the hearsay rule, it has obtained complete recognition in only one or two jurisdictions; but it deserves a fuller acceptance, and the precise bearings of the reasons for and against recognizing it deserve careful consideration.

(Testimony of S. W. Parr.)

‘(1) More than one reason has been advanced for prohibiting the use of learned treatises in evidence; but the only legitimate one, and the one generally pointed out and relied upon in judicial opinion, is that such an offer of evidence purports to employ testimonially a statement made out of court by a person not subject to cross-examination; i. e., purports to violate the fundamental doctrine (*ante*, pp. 1362) of the Hearsay rule. That this is the main objection is indicated in the following passages’:

And then follows the citation of a number of cases.

[1377—1315]

‘Other reasons, however, which have occasionally been suggested, usually in connection with the preceding one, must be briefly noticed.

‘(2) We are told that science is shifting; that experiment and discovery are continually altering scientific theories and rendering them valueless; so that a “medical book which was a standard last year becomes obsolete this year”; that there is no general agreement among scientists, and that testimony characterized by such instability and uncertainty is untrustworthy. Leaving aside for the moment the ignorant exaggeration in these changes, which attribute to the entire body of scientific knowledge the instability due to recent rapid progress in certain departments of the sciences, and ignore even in those departments the small proportion which the field of possible change bears to the large area of established truth, we find that the objection is in itself inconsistent with accepted legal practices, and would if

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consistently applied exclude all testimony even on the stand from scientific witnesses. For if these works are rejected because they may not embody the latest results of science, what shall be said of specialist witnesses in general? Out of the hundreds of scientific experts who are this month testifying in courts of justice, how many are speaking from a thoroughly acquaintance with the latest researches in their subjects? For how many of them is it possible to maintain steady pace with the daily progress of science?' There is some more along that same line. And now I will read the following:

'(3) Another objection sometimes raised is the danger of confusing the jury by technical passages without [1378—1316] oral comment and simplification. A number of answers to this will suggest themselves; it is enough to point out that, so far as it is an appreciable danger, the counsel may be trusted to protect themselves, where necessary, against this danger by employing also an expert to take the stand.

'(4) Another objection, once made, is that the treatises may be used unfairly by taking passages which are explained away or contradicted in other books or in other parts of the book. Here, again, so far as the possibility is appreciable, the opposing counsel may be trusted to protect his client's interests, exactly as he does by bringing to the stand one expert to oppose another, and with much less difficulty and expense.

'All these objections, appearing in the beginning

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as the casual thoughts of individual judges in past and less liberal generations, have been elevated to the rank of accepted reasons and given vogue by one or two writers on Evidence, and have thence found their way into many judicial opinions of the present generation. But for this, it is probable that the true reason for the rule of exclusion would, in this country at least, not have been obscured in the minds of a generation naturally so hostile to such illiberal notions.

‘(5) There is also to be noticed, moreover, the original reason offered for exclusion by Chief Justice Tindal, in *Collier v. Simpson*, the starting point of the English decisions. “Physic,” he said, when asked by counsel why he could not read to the jury a medical book as well as a law book, “depends more upon practice than law does”; meaning apparently that though the principles of law are chiefly obtained from books, the truths of medicine are to be sought [1379—1317] chiefly in the personal experience of physicians. It is almost needless to say that medical treatises cannot in these days be put on the shelf with the simple statement that medicine depends more on practice than the law does. The great shorehouses of medical experience are the books and journals of the profession. “Medical evidence,” it has been truly said, altogether is little else than a reference to authority.” The argument of Chief Justice Tindal has not reappeared.

‘1. The Exception is Recognized. The grounds for recognizing the Exception, and its proper limi-

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tations, if recognized, may be taken up in the light of the general considerations already mentioned for the other Hearsay Exceptions (*ante*, pps. 1421-1424).

‘Sec. 1691. General Principle: (1) Necessity. The necessity (*ante*, p. 1421) seems palpable enough, if we examine carefully the results of the strict enforcement of the Hearsay rule. The ordinary expert witness in perhaps the larger proportion of the topics upon which he may be questioned, has not a knowledge derived from personal observations. He virtually reproduces, literally or in substance, conclusions of others which he accepts on the authority of the eminent names responsible for them. If, whenever this is discovered, we are to reject the evidence absolutely, then on all such matters the only resource is to search for a qualified expert, who may or may not be available within the jurisdiction. Even where such a person is legally procurable (all the chances being against it except in a few centres of population), the expense is frequently disproportionate. Costly litigation is the parasite [1380—1318] of justice; and we pay too high a price when we refuse to accept our information from a competent source ready at hand. Moreover, there are certain matters upon which the conclusions of two or three leaders in the scientific world are always pre-eminently desirable; and it is highly unsatisfactory that, except in the region where they may happen to live, the opinions of world-famous investigators should have no standing of their own. Whether

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such persons are legally unavailable, or whether it is merely a question of relative expense, the principle of necessity (*ante*, p. 1421) is equally satisfied; and we should be permitted to avail ourselves of their testimony in the printed form in which it is most convenient.

‘The proper rule would be for the Court to allow the use of a printed treatise, unless in its discretion, considering all the circumstances, the author if available should be summoned. In practice, the Courts which allow the use of learned treatises apparently do not impose any such condition.

‘Sec. 1692. Same: (2) Trustworthiness. Under the second general consideration for Hearsay exceptions (*ante*, p. 1422) the question here is whether there are any circumstances attending the publication of a learned treatise which give a fair guarantee of trustworthiness.’

These reasons are so cogent, your Honor, that I wish to impress them upon you.

The COURT.—I know they are so cogent, but they may well have been presented to a legislature which has the power to change rules of evidence.

Mr. OLNEY.—I want to call your Honor’s attention to an authority in that connection, *Western Assurance Company vs. Mohlman*, 83 Federal, 811, a decision by Judge Lacombe [1381—1319] in the Circuit Court of Appeals. The case was before Peckham, Circuit Judge and Lacombe and Shipman, Circuit Judges.

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‘The next group of assignments of error raises the question as to the propriety of allowing one of the witnesses, a civil engineer, and expert in heavy construction work, to read excerpts from scientific books when giving his testimony. The general proposition that scientific books are not to be read in evidence is a familiar one, and many citations from text writers and reported cases are found in the brief of the plaintiff in error. Nearly all the reported cases deal with medical works, and most excellent reasons for the application of the general rule in such cases may be found therein. But the rule is not of universal application. It would be a reproach to the administration of the law if it were so. Records of observations are undoubtedly secondary evidence, but, if all such records were excluded from the sources of knowledge available to a court of justice, it would frequently find itself unable to obtain information which was open to every individual in the community. It has been held repeatedly that standard life and annuity tables, showing at any age the probable duration of life, are competent evidence (*Railroad Co. v. Putnam*, 118 U. S. 554, 7 Sup. Ct. 1); and yet these tables show merely the deductions from records of past transactions when neither the record of the transactions nor the individual who has worked out the deductions is called to testify to the accuracy of his work, or to the conditions under which it was performed. So, too, almanacs, astronomical calculations, tables of logarithms, interest tables, weather reports, tables of the rise and fall of the tide, have

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been admitted in evidence.' [1382—1320]

Mr. ROCHE.—Mr. Olney, is it not a fact that in each instance there the Court will take judicial notice of those facts, including the mortality tables? The Supreme Court of this State and the Supreme Court of the United States have so decided.

Mr. OLNEY.—It does not make any difference whether that is so, or not. If Mr. Roche's proposition is true, and the Court will take judicial notice of it, then the Court will take judicial notice of what we are going to put in evidence here, and for the purpose of getting it before the Court and the jury, we are entitled to put it in evidence. That is exactly what was done in this particular case, where this witness read excerpts from scientific works on the subject upon which he was testifying.

Mr. McCUTCHEN.—And that was for the purpose of showing the resistance of certain material, or the tensile strength of certain material, was it not?

Mr. OLNEY.—Yes.

'In an opinion approving of the admission of market reports, upon which the commercial world relies, is found the following pertinent suggestion of Judge Cooley:

“As a matter of fact, such reports, which are based upon a general survey of the whole market, and are constantly received and acted upon by dealers, are far more satisfactory and reliable than individual entries, or individual sales or inquiries; and courts would justly be the subject of ridicule if they should deliberately shut their eyes to the sources

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of information which the rest of the world relies upon, and demand evidence of a less certain and satisfactory character." *Sisson v. Railroad Co.*, 14 Mich. 497. [1383—1321]

‘The particular excerpts complained of in the case at bar are these: Certain reports of the United States department of agriculture, prepared under the direction of the chief of the division of forestry, contain tables which comprise the results of over 2,000 tests by the United States Government of the crushing strength of different kinds of timber, prepared expressly to increase the knowledge of timbers grown in this country for the benefit of merchants and dealers and builders and engineers. The report is a recognized authority in the engineer’s profession. From the tables the witness read the “results of investigation on long leaf pine,” which was the kind of timber in the posts the cause of whose giving way was the subject of dispute. The next book produced was Kent’s Mechanical Engineer’s Pocketbook,—the last edition of 1896—which, it is not disputed, is a recognized authority. “Every mechanical engineer,” says the witness, “has it on his shelf.” From a table in this book, giving the crushing strength of timber, the witness read a statement of such strength, per square inch, of the kind of pine of which the posts were made. The third book is Johnson’s Strains in Frame Structures, also concededly a recognized authority. It contained similar tables, and a similar excerpt was read. That information of great value is obtained by multiplying such tests and tabulating

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the results is surely self-evidence. Under the rule contended for, the results are surely self-evident. Under the rule contended for that valuable information would be available for the use of a court of justice so long as the men who made the tests and prepared the tabulations were living and producible, but after their death or disappearance the information they had gathered would be lost to the Court, although available for [1384—1322] every one else in the community, and relied upon by engineers and builders whenever a new structure is in process of erection. Upon the precise point here presented the diligence of counsel has not succeeded in discovering a single authority. We fell, therefore, no hesitancy in so modifying the general rule as to *feel, therefore, no hesitancy in so modifying the general rule as to* hold that, where the scientific work containing them is concededly recognized as a standard authority by the profession, statistics of mechanical experiments and tabulations of the results thereof may be read in evidence by an expert witness in support of his professional opinion, when such statistics and tabulations are generally relied upon by experts in the particular field of the mechanic arts with which such statistics and tabulations are concerned.'

We have in this State Section 1936 of the Code of Civil Procedure, which reads:

'Historical works, books of science or art, and published maps or charts, when made by persons indif-

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ferent between the parties are *prima facie* evidence of facts of general notoriety and interest.'

And so I say to your Honor that the legislature has acted on this particular thing.

The COURT.—If this comes within that class, yes, of general notoriety and interest.

Mr. OLNEY.—Books of science and art are *prima facie* evidence of facts of general notoriety and interest.

The COURT.—Those are matters that the Court will take judicial knowledge of, of course.

Mr. ROCHE.—Yes, your Honor.

Mr. OLNEY.—It is more than that. This says, 'they [1385—1323] are admissible in evidence and they are *prima facie* evidence' of these matters; what I was going to say to your Honor is this: That if that section is limited to facts of general notoriety and interest, meaning thereby matters that are known to people in the community there would be no use of the section at all because there would be no reason for the introduction of the books of science or art or historical works under those circumstances. To give it any force at all the section must be designed to cover those cases where there is in the profession or in the particular study matter of general notoriety and interest, matter on which there is a practical agreement of opinion by the people who are studying it and are concerned in it, if this section is to be given any force. It must appear that that is the subject and the instance in which works of science or art and historical works and published maps and things of

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that sort can be introduced. That is exactly the case here.

The COURT.—It does not seem so to me. You have produced a witness here who has, according to his own testimony, made very thorough experiments into these matters; he may testify to the results ascertained; but beyond that, I don't think he is competent to testify. If the matter is of such general notoriety as to warrant the admission of it in evidence we would probably know something of it ourselves without being compelled to resort to this witness to testify that these experiments have been made by others.

Mr. OLNEY.—I don't want to encroach upon your Honor's patience in this matter, but I say that your Honor's remark there indicates that the section of the Code of Civil Procedure which I read to your Honor was designed to cover [1386—1324] another case entirely, because there would be no reason for that section if the matter of public notoriety and interest which is spoken of there was a matter which everybody knew about anyhow.

Mr. ROCHE.—Mr. Olney, what difference would there be between a case such as this where you are trying to establish some scientific work on coal and a scientific work on surgery, which so far as our knowledge goes, is claimed now to be an exact science. The Code does not distinguish between a case such as this and any other case. It is true that medicine is not an exact science and yet it is a science, and the statute to which Mr. Olney has directed your Honor's

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attention does not recognize any distinction between what counsel calls an inexact science and an exact science. If this is true, then any book on surgery or any book on science would be equally admissible.

Mr. OLNEY.—I would say that the answer to that, Mr. Roche, is that these rulings of the courts excluding medical books and books on surgery were made years ago and have been followed blindly by the Courts since; and that in the last 20 years—yes, in the last 10 years there has been such progress in the art of medicine and surgery that it is almost a disgrace to the courts that they shut out these reliable sources of information from themselves by blindly following the old rule.

The COURT.—I understand that, but if we can each make a rule for ourselves we would then have no rule at all. It would be a very different matter, of course—if this evidence is admissible, the Government has no relief at all; if it were offered by the Government and admitted over objection [1387—1325] by the defendants, and admitted improperly, the defendants would have relief; but the Government is in a position where if the Court errs against it, it can have no relief whatsoever.

Mr. OLNEY.—If they have any works of science they can produce them.

The COURT.—I am speaking of the application of the rule. The objection is sustained.

Mr. OLNEY.—We take an exception.”

The Bureau of Mines of the United States Government has made a study of this subject of coal and be-

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fore the Bureau of Mines was organized the United States Geological Survey made a similar study. The men in connection with the United States Bureau of Mines who are particularly engaged in this subject are Porter, Fieldner and Davis. They are still in the service of the Government. I am acquainted with them.

“Q. Where are they located?

Mr. SULLIVAN.—We object to that as immaterial.

The COURT.—What is the materiality of that, Mr. Olney?

Mr. SULLIVAN.—Do you want to know their opinions through this witness?

Mr. OLNEY.—No, not through this witness.

The COURT.—What is the materiality of this line?

Mr. OLNEY.—I wanted to bring home some Government publications, if the Court please, in connection with the Bureau of Mines.

The COURT.—If the Government publications are admissible in evidence they are admissible for that reason, [1388—1326] and they do not need any support.

Mr. OLNEY.—Very well, your Honor.

Mr. McCUTCHEN.—Will your Honor permit a suggestion now?

The COURT.—Yes.

Mr. McCUTCHEN.—I have an impression that Mr. Olney wants to develop the fact that these gentlemen are in charge of stations maintained by the

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Government for the purpose of testing coals and determining the changes in weights, among other things, that coal undergoes. If the witness is familiar with that, it seems to me that he is competent to prove it, and in connection with any offer of Government publications audited by these three men.

The COURT.—I don't think that adds anything to it. They are either admissible and carry their own authenticity or confirmation with them, or they are not; what you are trying to do is to support by the testimony of this witness the testimony of certain other witnesses who are going to be introduced by having him testify that they are real experts.

Mr. McCUTCHEN.—I think your Honor misapprehends the matter.

The COURT.—In its last analysis I think it is that.

Mr. OLNEY.—It is just the other way, your Honor. We want to support the testimony of this witness—

The COURT.—Well, yes, if you called them to the stand, they couldn't tell you that this witness is a thorough expert. Now, you are trying to have him say that they are thorough experts. [1389—1327]

Mr. OLNEY.—No, that is not it, your Honor.

The COURT.—Then I can't follow you.

Mr. OLNEY.—We have called this witness and we are going to ask him certain questions which will deal specifically with the particular subject that is under investigation in this trial.

The COURT.—Yes, that is very proper if we ever get that far.

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Mr. OLNEY.—In addition to that, your Honor, for the purpose of corroborating the testimony of this witness, so to speak, we want to show that his testimony is in accord with the general scientific opinion upon this subject.

The COURT.—We have passed that, and we have come to certain Governmental reports.

Mr. OLNEY.—I desire to do the same thing with this.

The COURT.—They may be admissible upon another ground, but not because this witness says the man who produces them is an expert, and a good one, or because they have been located at any certain place. If they are admissible as Government reports, they are admissible under the rule that permits them to be introduced.

Mr. McCUTCHEN.—Might it not add to the value of these publications?

The COURT.—It might, but should it?

Mr. McCUTCHEN.—I think it should.

The COURT.—I don't think so; they either stand or fall by themselves.

Mr. McCUTCHEN.—If it is shown that the authors of these reports were men actually in charge of Governmental stations that were organized and conducted for the purpose of [1390—1328] dealing with the subject with which the reports deal, I think that would be proper.

The COURT.—I suppose the Government would not put them out unless they were proper. They put them out because they are reports which came into

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them in due course. If they were sent in by some fellow who was not so expert, I suppose the Government would print and publish them just the same. The objection is sustained."

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

"Mr. OLNEY.—Q. Does the United States Bureau of Mines in addition to making what I may call a scientific or theoretical study of coal perform as a part of its duties any function in connection with the practical application of its studies and inspection?

Mr. ROCHE.—That is objected to as calling for the conclusion of the witness. It asks the witness to state what these men do.

The COURT.—The objection is overruled.

A. The Department does carry on such work.

Mr. OLNEY.—Q. And what is the nature of that work?

A. It is in the nature of coal inspection covering the purchases made by the Government.

Q. Just state a little more fully what the nature of that inspection is?

Mr. SULLIVAN.—We object to that as calling for a legal conclusion. The law defines the duties of those officials.

Mr. OLNEY.—I am not asking what their duty is; [1391—1329] I am asking him what they do.

Mr. SULLIVAN.—Well, I suppose they do their duty; whatever their duty is, they do; you are asking the witness to express a conclusion of law.

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The COURT.—The objection is overruled.

A. The Government purchases between 5,000,000 and \$6,000,000 worth of coal annually, and it is the duty of these men to see that the conditions under which the coal is contracted for are met by taking samples of the coal and determining whether it is according to the standards of the specifications.

The COURT.—Q. Then their duties relate and cover really much the same as yours do, except on a larger scale, much the same as your duties in relation to the State of Illinois?

A. Precisely so.

Mr. OLNEY.—Q. You say this coal purchased by the Government, was purchased according to specifications, and that it is the duty of the Bureau of Mines to see that the coal comes up to the specifications of the contract.

Mr. ROCHE.—That question is objected to, may it please the Court, upon the ground already stated. Counsel is endeavoring to qualify now some of these Government officials through the testimony of the witness upon the stand.

Mr. OLNEY.—No, I am not, and I have not finished the question. I will finish it.

Q. I am going to ask you, Professor Parr, if these specifications in the Government contracts for the purchase of coal contain any specifications as to moisture content?

Mr. SULLIVAN.—We object to that as calling for [1392—1330] hearsay evidence.

The COURT.—The objection is sustained.

(Testimony of S. W. Parr.)

Mr. STANLEY MOORE.—We take an exception.

Mr. OLNEY.—Q. Do you know, of your own personal knowledge, what these Government contracts call for by way of specifications as to moisture content?

Mr. SULLIVAN.—We object to that as calling for incompetent testimony. The specifications speak for themselves.

The COURT.—The objection is sustained.

Mr. OLNEY.—We note an exception.

Q. What is the practice pursued by large purchasers of coal in the east with reference to the purchase of coal and providing as to moisture content?

Mr. ROCHE.—We object to the question as immaterial, irrelevant and incompetent, and we have nothing at all to do with what practice is now being or has been heretofore pursued in the east or by any corporation or by any firm or person other than the Western Fuel Company.

The COURT.—The objection is sustained.

Mr. OLNEY.—We note an exception."

I have personal knowledge that as a matter of fact the analyses and samples which are taken by the Bureau of Mines on the purchase of coal by the Government are concerned with the determination of the moisture content of coal. The fact is that the moisture contents is a very important item, and is always considered. Good practice would prescribe that in sampling coal for the purpose of determining whether deliveries conform to the specifications of the [1393

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—1331] contract one sample should be taken in each car lot or 50 tons. Samples should be taken thus often because of the variation in moisture content from car to car or even sometimes in different parts of the same car. These variations in moisture content are almost identical with the changes in the weight of the coal. Furthermore, these variations in moisture content and in weight are not confined to differences between different coals or coals from different mines, but are found in the same coal from the same mine equally as frequently as between different coals. The moisture content of coal from any mine or vein is not variable, but is fairly constant as the coal is mined from year to year,—that is to say, is substantially the same at the point of taking out from the mine. The variations in coal from different parts of the mine are small and are confined within narrow limits.

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Mr. OLNEY.—Q. Then, as I get you, the observed facts upon this point are that the moisture content of coal from any particular part of the mine is fairly constant as mined. A. It is.

Q. But after this time the moisture content is variable? A. It is.

Q. And these variations in the moisture content take place in the course of shipment and in storage and marketing? A. They do.

Q. These variations, as I understand you, corre-

(Testimony of S. W. Parr.)

spond to variations in weight.

A. They do. [1394—1332]

Q. Within what range are these variations in weight observed? A. Under shipping conditions?

Q. Yes, under practical conditions, within what range would these variations in weight take place?

A. Between a range of from one to 15 per cent.

Q. One to 15 per cent of the weight of the coal?

A. Of the weight of the coal.

Q. Is that 15 per cent a percentage found in actual commercial practice? A. It is.

Q. Is this change in weight recognized commercially? A. It is.

Q. Can you give an instance of that?

Mr. ROCHE.—One minute. That is objected to, may it please the Court, as calling for the opinion of the witness and as being something which is not the subject of expert evidence.

The COURT.—The objection is sustained.

Mr. OLNEY.—It is not a matter of opinion; I am asking him to give an instance where it is recognized commercially.

The COURT.—Even that is not a material matter here.

Mr. OLNEY.—We note an exception.

The United States Geological Survey and the Bureau of Mines have issued publications in which this matter of variation in the weight of coal due to variation in moisture content is touched upon. (Bulletin Number 41 of the Department of the Interior, Bureau of Mines was here introduced in evidence as

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Defendants' Exhibit "GG." The witness was here [1395—1333] asked to call to the attention of the jury, by reference to tables beginning on page 37 of said bulletin, which tables record the results of the analyses of coals delivered to the Government under contracts in 1909 and 1910, those cases where on the same coals the moisture content from time to time has varied by considerable percentages, the witness having first testified that he was acquainted with the practice of the Bureau of Mines in taking the samples for said tables and having explained that the samples were taken at the point of delivery to the Government, and that the tables show in each case where the coal comes from, that is to say, the source of the coal, and having testified that all of the coal in each particular table comes from the same source.)

(To Mr. ROCHE.) The table does not show how long before the examination the coal was taken from the mine. The Government is not concerned with the time element.

Mr. OLNEY.—Q. Professor Parr, will you take the cases of the large differences?

A. Here is a case of 2.4 per cent at one time and 6.3% at another time; that lacks very little of being 4%.

The COURT.—Q. 4%, and that shows that coal under certain conditions will vary 4%; that is all it can show, isn't it?

A. Yes. Here is another case of 1.5 at one time and another time 4.5; that is about 2½% difference. Here is a case of 2% and 4.8%, a difference of 2.8%.

(Testimony of S. W. Parr.)

Here is a case of 2.39%, and the same coal 9.9%; that is a difference of $6\frac{1}{2}$ per cent. Page 43 was the last item. The next page is 50; that is a case of 4.1%, and at another time 11.25%, a difference of 7.2%. Here is a case of 2.4%, and at another time 7.95, a difference of 5.7%. Here is a case of 1.3, and the same coal at another time at 5.8, which [1396—1334] is a difference of $4\frac{1}{2}$ %. Here is one of 1.9, and 6.35 at another; that is about $4\frac{1}{2}$ % difference. Those are all the cases of moisture extremes.

Mr. OLNEY.—Q. There are other tables there in which the difference in moisture content is not so great, are there not?

A. There are.

Q. As between those tables in which the variation is great and those in which the variation is small, which are the significant as indicating the susceptibility of coal in the changing of weight?

A. Those showing extremes are the more significant because they show what external conditions may do and we do not know in the other cases the condition the coal was subjected to.

Mr. OLNEY.—Q. Is there any difference between the moisture content in different seasons in these tables? A. There is.

Q. What is that difference in general?

A. In that part of the year when the rainfall is occurring it seems to be quite consistent that there is an increase in the moisture content.

Q. That is, according to the tables?

A. According to the tables.

(Testimony of S. W. Parr.)

Q. By the way, in this connection, Professor, let me ask you are you acquainted with the method of analyses pursued by the Government in getting these results? A. I am.

Q. Is that method such that any error occurring in the course of it will give too little or too great moisture, or will it average itself in the long run? [1397—1335]

A. It is of such character that the differences are under rather than over, and the moisture content as indicated is small rather than great; I mean to say the analysis of an individual coal will tend to give a too low moisture content.

Q. In other words, these variations of which you speak are in all probability—not in all probability—I will change that. In other words, the method of the Government analysis is such that the actual differences in the moisture content are greater than would be indicated by these published results?

A. That is true.

The COURT.—Q. Would that be true wholly, Professor? When they start in with their first analysis don't they take the *little* under too?

A. The conditions of the analyses are such in the high moisture coals that it is very difficult to avoid losing more water relatively than in the low moisture coals.

Mr. OLNEY.—Q. Will you just explain that fully to the Court and the jury, that pursuing the same method of analysis on a coal with a low moisture content as on a coal with a high moisture content

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you nevertheless, if there is any error, will find the error in favor of a larger variation between the two than is actual; that is, why is not the percentage of error the same in both character of analyses, both where the percentage of moisture content is low and where it is high?

A. In that sample which at the start has low moisture content, the tendency of that moisture to get away is rather slight; that is to say, it is already dry and the air will not dry it any more. When working with a substance with much water in it, it requires exceedingly great care to avoid loss of [1398—1336] moisture which does not come into the account; it gets away without being weighed into the final estimation; hence a high moisture coal is very certain to have more moisture in it than the analytical results will really show at the end. This is one of the most difficult things that the chemist has to deal with.

I have made myself familiar with the character of Wellington coal in British Columbia and of Richmond coal from Australia and of Japanese coal. All these coals are of the bituminous type. I have made analyses of these classes of coal to determine their moisture content. They are all of the low moisture class. Bituminous coals will vary in moisture content, and in weight from 2% for the low moisture type to 14 or 15% for the high moisture type. These particular coals have a moisture content varying from 3 to possibly 3½%. The time at which I speak of them as low moisture coals is the time of mining,

(Testimony of S. W. Parr.)

that is of the breaking of the coal out from the seam at the face of the vein. There is no difference in the behavior of low moisture coals on the one hand and of high moisture coals on the other hand after they have been taken from the mines and subjected to the air and the weather, excepting in the amount of of change. They both change alike but different in degree.

Q. Will you take, for instance, a high moisture coal, a coal with a high moisture content when mined and explain what would take place with it, what change would take place in its moisture content as compared with a low moisture coal and the changes which take place in its moisture content in the ordinary process of handling?

A. In the case of a high moisture coal, that is, one with 12 to 15 per cent of moisture, the tendency [1399—1337] with that coal is to lose moisture, and the quantity in process of shipment where it is not exposed to weather conditions would be greater than in the case of a low moisture coal where it started out with 3 per cent of moisture and was not exposed to weather conditions, the loss of moisture in the case of that coal would be smaller in amount.

Mr. SULLIVAN.—Q. Proportionately?

A. Proportionately smaller.

Mr. OLNEY.—Q. That is, you are speaking now of a high moisture coal which is transported under cover and a high moisture coal which is not transported under cover; is that correct?

A. If both coals are transported under cover the

(Testimony of S. W. Parr.)

tendency will be on the part of both to lose moisture; the high moisture coal will lose more; it may lose 2% of moisture. The low moisture coal in transporting under cover cannot lose proportionately the same amount even; it may lose as much as $\frac{1}{2}\%$ possibly in the process of transportation.

Q. Under the same circumstances what will happen with the high moisture coal?

A. If it is transported under cover and without access to moisture?

Q. Yes. A. It will lose possibly 2 per cent.

Q. What I really had in mind, Professor Parr, was this: Suppose you take a low moisture coal and also a high moisture coal, and you either ship them or store them, open to the weather, and subject to the weather, how will those coals behave with relation to their moisture content and changes in weight compared one with the other?

A. If they are exposed to the weather there can be nothing happen really to the low moisture coal excepting to [1400—1338] increase in weight, because it is down at the minimum point to start with. The high moisture coal normally will increase in weight, but its ability to lose may offset that so that the ultimate result may be about even. But if it is exposed to the weather, to certain conditions of weather, of course the high moisture coal will run beyond its normal moisture and increase in weight proportionally.

* * * * *

Mr. OLNEY.—Q. Take this case: Take the case of

(Testimony of S. W. Parr.)

coal which is mined at Nanaimo, and almost immediately put on board ship there for San Francisco, and brought to San Francisco by ship, under hatches, that is, under deck, and not exposed to the weather. Now, what changes in moisture or content or in weight will occur in that coal from the time it is mined at Nanaimo until it arrives at San Francisco and is weighed here?

A. It will lose in weight while it is left uncovered to a certain amount, but as I stated before, that amount of loss will be very small. It is the tendency of all coals, upon being broken out from the mine, to lose the moisture which they have entrapped or entrained in the texture of the coal, being under great pressure; when that pressure is removed, all coals lose a small amount of moisture which they have inherent in the coal, and this would be the characteristic of the coal from Nanaimo, as well as any other coal.

Q. You say the moisture being in the coal under great pressure, you refer to the coal in the seam, do you not? A. In the seam.

Q. Suppose the cargo of coal that was loaded at Nanaimo was wet when loaded, whether from rain or from any other cause, would that make any difference?

A. It would [1401—1339] be a little higher moisture coal, and would have a higher chance for loss, the loss would be greater—could be greater than if it started out with a lower moisture content.

* * * * * * * *

Q. Take the case of coal arriving here from

(Testimony of S. W. Parr.)

Nanaimo, Professor Parr, and being stored in the yard, say, or in the bunkers of the Western Fuel Company, will that coal lose weight or gain weight, or is there any general rule as to its gaining weight or losing weight during its course of storage there?

A. Considering the character of the coal, it could not lose weight; it would gain weight if it did anything.

Q. To what extent, and dependent upon what conditions would it gain weight?

A. It would depend on the climatic conditions, and the extent would be within the range, I should say, of eight, nine or ten per cent.

The COURT.—Q. You are speaking of the weight, now, Professor? A. Of the weight.

Mr. SULLIVAN.—I understand that is the amount gained.

Mr. McCUTCHEN.—The witness says it would be within that range.

Mr. SULLIVAN.—Yes, 10 per cent.

Mr. OLNEY.—Q. You mean by that that it would gain eight or nine per cent in moisture content, and accordingly in weight; is that correct?

A. Yes, sir.

The COURT.—Q. Do I understand that if it gains 8 per cent in moisture content, it gains 8 per cent in weight?

A. It does; the two are synonymous practically.
[1402—1340]

Q. You measure the moisture content by weight?

A. By weight.

(Testimony of S. W. Parr.)

Mr. OLNEY.—Q. These percentages of moisture content are really percentages of weight, are they not? A. They are percentages of weight.

In case of coal being wet, there would be a great difference between the proportion to which fine coal and lump coal respectively would increase in weight. The rule in that respect is that the capacity of the coal to hold water would be directly in proportion to the amount of fine coal. Lump coal without any fines in it would perhaps have its upper limit of moisture content at 2 or 3 per cent. The finer the coal the more moisture it would hold up to 8 or 10 per cent, in the general type of coal that is handled here. Some of the coals have so much fine material in them that a moisture content might run up as high as 12 or 15 per cent; that would be entirely reasonable. As to the coals which I have observed here in which the moisture content might run that high or in which that increase in weight might have occurred, I would say that the Japanese coals have a larger amount of fines and consequently would have the higher weight. I have observed vessels discharging here and my statement is based upon my observations in that connection. I have seen a number of Australian cargoes discharged here. They do not have as much fines and would not hold as much water as the Japanese coals. A pile of fine coal once wet dries out only superficially—I should say to the extent of 5 or 6 inches under the surface—deeper down it would be wet still if it were wet originally. The reason for that is that the drying out of any material is depend-

(Testimony of S. W. Parr.)

ent upon the circulation of air and if fine coal is left undisturbed and is wet it cannot dry out very far below the surface. In the [1403—1341] case of a pile of fine coal 8 or 10 or 20 feet deep, for instance, which was built up during the rainy weather in the spring and allowed to remain all summer exposed to the open air without any rain whatever upon it, the loss of moisture during the whole summer would be very slight and would be confined exclusively to the surface of the pile 5 or 6 inches deep. In the case of a pile of what might be called average coal, that is, coal made up of lumps and fines as I have seen it discharged from these steamers, there would be more drying out because the air could circulate among the lumps, but a little below the surface the fines settle and accumulate and stop the circulation of air so that the loss of moisture in the pile would be slightly affected.

I know of an experiment or test being made to ascertain the percentage of screenings in a lot of coal received by steamer here. Certain bunkers were filled with Australian coal as it was discharged from the importing steamer and the weight taken. The scales of the lumps from those bunkers were retained and kept separately so that a percentage could be calculated as to the fines that resulted. The percentage found was a trifle over 24%. I think several hundred tons were observed in the course of that test. This lot of coal would be a very fair average, in respect of percentage of screenings or fine coal, of the Australian coals generally as I have seen them

(Testimony of S. W. Parr.)

coming into this port, but would not be a fair representation of the Wellington coals, though it would be as to them an approximation.

I have made tests to verify, with regard to the particular coal involved here, namely, the British Columbia coal, the Australian coal and the Japanese coal, those general propositions to which I have testified. Thus I have twice visited [1404—1342] the mines of the Western Fuel Company at Nanaimo; in August and December, respectively, of last year. On the August visit I made a comparison between coals that had been under cover and coals that had been out in the rain.

Q. Just state to the jury what the results of that comparison were.

A. In the case of coal which had been in storage, under cover, the moisture had not varied greatly from the moisture in the vein sample; it had dropped down about half a per cent, so that the loss in the weight of the car sample under cover would be represented by a half per cent less than when it was put in the storage. In the case of a car out in the open, the moisture content was 4.4 per cent, showing an increase of substantially 2 per cent over the car under cover; so that the increase in weight in the car in the open was substantially 2 per cent.

The test was made between August 25 and September 1, last. The coal had been out in the weather presumably 4 or 5 weeks. The rainfall, according to the weather report in that period had been a trifle under one inch. The particular car from which I

(Testimony of S. W. Parr.)

took my sample had been rained upon not over 2 or three weeks before the sample was taken. During that 2 or 3 weeks there had been no rain. I did not take a sample of the coal from the top of the car which had been rained upon, but my companion, Professor Sommermeier, did. The surface of the coal on top of the car in the open was dry down 6 or 8 inches. It was an open gondola car, not of steel. The coal was largely fines and its depth in the car approximately 5 feet. [1405—1343]

I took some samples of the Australian coal here in San Francisco before and after the rain. A sample of coal was taken on December 10, 1913, from the steamship "Lord Sefton." As the coal was being unloaded the percentage of moisture content was 3.11. The result of a rainfall on the night of December 10th was .2% of an inch. The moisture in the coal for a distance of 10 or 12 inches below the surface on the next morning after the rain was 12.15%, showing an increase in weight for that part of the coal of 9% to the depth to which the water had penetrated. In the meantime, and while this coal had been exposed to the rain, it was in a bunker on the discharge or land side of the Folsom Street bunkers. That is to say, it was in one of the regular bunkers there. I also made a test as to the capacity of fines, as they come from the screens, to hold water. A hundred pound lot of coal was saturated to the point where it would not hold any more water and given an hour to retain it to see what its capacity

(Testimony of S. W. Parr.)

for moisture was. It showed an increase in weight of 9.25%.

Q. Now, Professor, with relation to determining the proportion which lump coal, for instance, will retain as compared with the proportion which fine coal will retain, did you make any test upon that subject? A. Not on this specific coal.

Q. Did you make it in regard to other lots of coal, Nanaimo coal and Australian coal?

A. I conducted experiments on smaller lots of all three types of coals to determine the total capacity of fines, and the coal from which the fines had been taken. I misunderstood you. They were not large lumps, they were small, with all the fine material out. I made such experiment. [1406—1344]

Q. Did you make any tests to determine what proportion *would* the coal consisting of fines, or having fines in it, would take of water as compared with coals from which the fines had been removed?

A. Yes, I did.

Q. Will you state the results of those tests, and what the tests were?

A. A coal which is fine enough to and will pass a ten-mesh sieve, that is, a sieve with ten divisions to the inch, has a capacity—these particular coals, and in this they do not differ from other coals, but these coals show a capacity for water of 36 to 42 per cent in the extremes. The same coals with all the fines taken out, but still being fine enough to pass through a one-quarter inch mesh sieve, that is, with four divisions to the inch, have a capacity for water vary-

(Testimony of S. W. Parr.)

ing from 3-1/3 per cent to 8.19 per cent in the extreme.

I have testified that there are two causes for variation in the weight of coal—one the moisture content and the other oxidation. Oxidation always increases the weight of coal. If there is oxidation there is an increase in weight so far as it acts.

Q. Will you explain to the jury just what that process (of oxidation) is, and what goes on?

A. There are two actions due to the oxygen of the air; one is an oxidation of the carbonaceous matter of the coal, the other is an oxidation of the sulphur in the coal, which is present in the form of yellow flakes, or small particles which the miner calls sulphur rock, other people call it fool's gold, iron pyrites, and sometimes simply [1407—1345] sulphur. This is a familiar constituent of all coals; sometimes in small specks, so you cannot readily see them, but is always present to the extent of from 1 per cent up to 4 per cent of sulphur in this form. Oxygen of the air and the moisture combined bring about an oxidation of this material; it is rapid, if the coal warms up a little; it is a little slower if the coal does not heat. The oxidation of each per cent of sulphur represents an increase in weight of from 5 to 6 per cent in the coal. The oxidation of the carbonaceous matter is smaller in amount and probably only in a fraction of a per cent. But this process of oxidation begins most actively when the coal is put in storage.

(Testimony of S. W. Parr.)

Mr. ROCHE.—Q. You mean 5 to 6 per cent of the sulphur matter itself, and not of the coal?

Mr. SULLIVAN.—No. He says a combination of the oxygen with the sulphur will increase the weight 5 or 6 per cent.

Mr. OLNEY.—Just answer Mr. Roche's question.

A. If the sulphur which oxidizes is 1 per cent of the coal, the ultimate weight is 5 per cent of the coal.

Q. That is, by this process of oxidation, the sulphur increases in weight between 5 and 6 times?

A. Between 5 and 6 times; the exact figures are between 5 and 6 times the amount of sulphur involved, which would be between 5 and 6 per cent of the entire mass of the coal.

Q. When you speak of the sulphur involved, you mean the sulphur which is oxidized?

A. Yes, sir, which is oxidized. In using that illustration, I would not say that one per cent of sulphur does oxidize, I simply use it as an illustration.
[1408—1346]

Q. You are taking the case of a complete oxidation of one per cent of sulphur?

A. That is what I mean.

Q. Just explain a little more fully what the process of oxidation is, as you call it, just what goes on? Take the case of rusting, does it compare with that?

A. That will serve as an illustration. A mass of iron files which weigh to-day 10 pounds, at the end of the year may easily weigh 12 pounds, by reason

(Testimony of S. W. Parr.)

of the rust which has accumulated. The rust is a combination of the oxygen of the air with the iron. It increases in weight in proportion to the oxidation which has been going on. That is to say, there is no product of oxidation which is volatile and goes off in to the air. Now, precisely the same thing is true of the sulphur rock in the coal, or the sulphur crystals in the coal. The process of oxidation is simply the taking on of oxygen and making a new chemical compound, which weighs more than the original sulphur compound. It has an *altogether character* and a different weight.

Q. Are coals subject to spontaneous combustion?

A. They are, almost without exception.

Q. What relation does this matter of the oxidation of coal bear to this matter of spontaneous combustion?

A. Those coals which are most readily oxidized and are most susceptible to this process of oxidation, are the ones most likely to take fire spontaneously.

Q. Is the converse true, that coal which is subject or likely to spontaneous combustion, can you draw the inference from that fact that it is also peculiarly subject to oxidation? [1409—1347]

A. That is the fact.

Q. Do you *know the* reputation of Australian coals is in that respect, with regard to spontaneous combustion? A. I do.

Q. What is it?

A. It is among the worst cases of tendency to spontaneous combustion.

(Testimony of S. W. Parr.)

Q. And you would draw the inference from that with certainty that it is a coal that is particularly subject to oxidation? A. It is.

Q. To what extent would this factor of oxidation play a part in increasing the weight of coal during storage, say, for three or four months here in San Francisco?

A. It would play a larger part than under a short time storage. The conditions necessary for this oxidation are accessibility of oxygen and water; and the two things given a longer time will produce a greater oxidation.

Q. Let me put a specific case to you: Take the case of a vessel that was loaded with coal in, say, January, and the coal was kept under hatches for a year and a half, and during that time heated—at the end of that time it was found to have heated, and it was then discharged; within what limits would you expect a change in weight, an addition in weight to that coal, by reason of oxidation? This Australian coal, by the way, that you are dealing with?

A. I would say that the amount of oxidation would in all probability range somewhere between 2 and 4 or possibly 5 per cent. Those would be the extremes, I would say. [1410—1348]

(The witness was here asked to explain further the process of oxidation, elaborating upon the instance of iron filings.)

A. I think we are all of us familiar with the rusting of iron which is due to the addition of oxygen in that case and the result of the iron oxide is that

(Testimony of S. W. Parr.)

all of the iron is there and in addition there is oxygen which produces the rust; it is not a volatile constituent, and does not get away in the process of the chemical change, so that the actual weight of the iron rust is more than the iron with which we started it. This is true of all oxidation processes. The products of oxidation are heavier than the constituent which is being oxidized.

Q. For the process of the rusting of iron is it necessary that the iron come in contact with water or can it get this oxygen from the air?

A. It can get it from the air, but water facilitates the process. However, the water plays the part of a vehicle and is not necessarily involved in the ultimate result; it is simply a combination of iron and oxygen.

Q. Professor Parr, take the case of a pile of coal, say 8 or 10 feet high which begins to heat and into the interior of which pipes are driven and through those pipes water is poured into the interior of the pile from time to time to keep down the temperature; to what extent, if any, would changes of weight occur in connection with such a pile? [1411—1349]

A. The addition of water to coal that is heated increases the oxidation process, and a larger amount of oxygen is added than otherwise would be the case; it would not be at all out of the ordinary experience for such addition to amount to 4 or 6 or even 8 per cent; it would depend upon the time, and the length,—the amount of time involved in the heating process.

(Testimony of S. W. Parr.)

Q. Now, in connection with the changes of weight, what part, if any, is played by the relative humidity of the atmosphere?

A. On low moisture coals it cannot but add to the rate by absorption of moisture.

Q. Are there any changes in weight due to a change in moisture content caused otherwise than by the actual precipitation of rain on the coal?

A. There are.

Q. How would it take place—what is the cause?

A. The cause is due to the simple absorption of moisture in the air; a coal, especially if it is finely divided and dry has a very great capacity for absorbing moisture from the air.

(The witness Parr was here withdrawn for the moment by permission of the Court and consent of counsel for the prosecution in order that the defendants might put in some evidence as foundation for further questions to be asked of said witness.)

[Testimony of D. C. Norcross, for Defendants (Recalled)].

D. C. NORCROSS, recalled as a witness for the defendants, testified as follows: **[1412—1350]**

Examination by Mr. OLNEY.

I have prepared a statement of the coal stocks of the Western Fuel Company beginning with April 1, 1906, and ending with December 31, 1912, showing the amount of coal on hand at the beginning of that period and the amount of coal on hand at the end of each month thereafter. Said statement I now

(Testimony of D. C. Norcross.)

hold in my hand. In addition to the aforesaid information this statement gives the amount of coal received and sold, the balance and the inventory amount and some figures about overage.

(The statement was here offered in evidence, whereupon and before its receipt in evidence, Mr. Sullivan of counsel for the prosecution elicited the following testimony from the witness:) This statement was prepared about six months ago. Prior thereto I prepared another statement which showed a total overrun exceeding the total overrun shown in this statement. That statement did not show a total overrun of 10,000 tons in excess of the overrun shown on this paper. That statement showed, I think, 64,286 tons. It was a pencil statement. I may have the original. It was the first statement I ever prepared on this subject. The total overrun in this statement is 61,825 tons for the period from April 1, 1906, to December 31, 1912, and in the other and earlier statement 64,000 and odd tons. Mr. Tidwell and I agreed at the time when I prepared our first statement to check our figures. His statement was 50,000 tons and mine, as I have said, 64,000 tons. As we checked over together, we found differences on both sides. He brought his statement up to 62,000 and I brought my statement down to 61,000 odd. His statement and mine were approximately the same on the final check up.

The figure 64,000 tons was the one that I report to Mr. McNab before the indictments in this case were found. [1413—1351] The total overrun for the

(Testimony of D. C. Norcross.)

period indicated and set down in the statement I now hold, Defendants' Exhibit "HH," is 61,825 tons, that is, a percentage of 2.9 of the total amount of coal received and on hand. That includes all of the coal imported, both sold by barges or delivered through barges or through the yards to retailers. I am referring, of course, merely to imported coal. The percentage is on custom-house weights.

The average amount of coal on hand and on storage during this period on the first day of each month is 32,085 tons. The coal is stored partly in San Francisco and partly in Oakland. The Western Fuel Company has covered storage space affording protection from the rain for about 10,000 tons of coal, 6,000 in Oakland and 4,000 in the Folsom Street bunkers, but we only use about half the Oakland space for imported coal and, for the last two years half of the Folsom Street space has had the roof off. I should say that the total imports of the Western Fuel Company are made up approximately as to 70% of British Columbia coal, as to 25% of Australian coal, and as to 5% of Japanese coal.

Cross-examination by Mr. SULLIVAN.

The figures that I used in giving the aforesaid percentage of British Columbia coal were the out-turn weight, being 1,280,676 tons. The bill of lading weight would be 1,295,199 tons. The average amount of coal received per month would be very close to the sales, because there would only be a few thousand tons on hand at the end of the period, and it would average up about the same. The yard

(Testimony of D. C. Norcross.)

coal is apt to remain with us longer than the bunker coal. We always go to the bunkers [1414—1352] first and leave the yard pile untouched except when the bunkers are exhausted.

We do keep coal in the yard for say more than 30 or 60 days at a time. How long we keep it depends as a matter of fact upon the amount of coal in the bunkers. The coal is moving in and out a good deal from the Oakland bunkers as also from the San Francisco bunkers. The coal is also continually moving out of the yard in San Francisco, but it moves more frequently when there is no coal in the bunkers. Large quantities of coal are constantly coming in and going out and that is particularly true with reference to the bunkers which are merely temporary storehouses.

**[Testimony of S. W. Parr, for Defendants
(Recalled).]**

S. W. PARR, a witness for the defendants, on the resumption of his direct examination, testified as follows:

Direct Examination by Mr. OLNEY.

I have made myself familiar with the records of the United States Meterological Station in San Francisco as to the falling of rain in this vicinity in the last 7 or 8 years, and I am also familiar with the records of said station as to the humidity of the atmosphere during the same period.

Q. Now, Professor Parr, take the case of a firm importing into this port and selling here during a

(Testimony of S. W. Parr.)

course of years, Australian, Japanese and British Columbia coals of the character of those you have examined, those low moisture coals, and assume, for the purposes of your answer, that the coals are discharged from the ships in which they are brought into bunkers, barges and yards, [1415—1353] and delivered from bunkers, barges and yards as sold by the importer, would such coals increase or diminish in weight between the time of their importation and the time of their sale, bearing in mind the climatic conditions existing here?

* * * * *

The COURT.—I suppose that question contemplates either an increasing or a diminishing of weight under any and all circumstances.

* * * * *

A. It would increase in weight.

I am familiar with the bunkers, barges and yards of the Western Fuel Company and have been on the bunkers almost daily for the last month and have watched the coaling of ships. I have also been on the barges and on the ships and in the yards.

Q. Assuming that the Western Fuel Company was engaged in the business of importing and selling coal during the years 1906 to 1912, inclusive, and that during that period it imported or purchased after importation at the port of San Francisco, approximately 2,000,000 tons; that these coals were British Columbia, Japanese and Australian coals, in the proportion of about 70% from British Columbia, 5% from Japan, and 25% from Australia, and were of

(Testimony of S. W. Parr.)

the character of the coals you have examined here, and that in order to carry on its business, the Western Fuel Company kept in stock in its bunkers, including the Folsom Street bunkers and other bunkers, and in its barges similar to those now in use by it, and in its yards, an average of 32,000 tons of these coals during the period mentioned, and that of [1416—1354] these 32,000 tons not to exceed 7,000 tons were stored under cover, and that 25,000 tons were stored either in open bunkers or in barges or in yard piles, what changes, in your opinion, did those coals undergo while in storage?

A. The changes would be such as are due to changes in moisture and changes in oxidation.

Mr. OLNEY.—Would these changes affect the weight of the coal? A. They would.

Q. To what extent was the weight increased or decreased by these changes?

A. The weight would be increased.

Q. To what extent, in your opinion, was the weight so increased?

* * * * *

A. I should say that a very conservative estimate for the lower limit of increase, taking into account rainfall on the stock on hand at any period during the year, would be [1417—1355] 2 per cent. If I were obliged to figure on one quantity, I should make it more than that. I think that is a conservative figure. I think the upper limit, a conservative figure would be 4 per cent, or $4\frac{1}{2}$ per cent. Within those limits somewhere, it seems to me, it is

(Testimony of S. W. Parr.)

easy to calculate the amount of weight taken on by rainfall.

Q. And oxidation? A. And oxidation.

I have visited the barges which were delivering the coal to Pacific Mail liners and have noted the character of the coal so delivered as to whether it was fine or coarse. I was present at the coaling of two separate ships.

Q. If such coal was so dry as to be dusty in the course of handling, what percentage in weight of water would be required to be added to it, in your opinion, in order to lay the dust?

A. I should say 2 per cent would hardly begin to lay the dust in a dry coal. I think that that could be made evident perhaps in this way: A ton of dry coal which would have two ordinary 3-gallon buckets of water turned upon it would not more than begin to moisten the coal; I doubt if it would lay the dust sufficiently to make it a working proposition. Two buckets of three gallons each would be a little over 2 per cent of water added to a ton of coal. I think to say that 2 per cent would be the minimum amount of water added to any amount of coal would be too small; but with somewhere between the range of 2 per cent and 4 per cent, the coal should begin to be dust free for working purposes.

Q. Would you say that 3 per cent would be a conservative [1418—1856] estimate?

A. I think it would be entirely conservative.

Q. Now, take the case of barges, and assume that in those cases where a barge was discharging coal

(Testimony of S. W. Parr.)

so dry as to be dusty and it was wetted down sufficiently to lay the dust, and assume that during one-half of the year, that is, during dry months, the coal discharged by the barges was of that character, and was wet down, and that the coal so delivered to the barges was approximately the same in amount, half year by half year, did such coal in your opinion increase in weight more or less than the general percentages to which you have already testified?

A. I think it would agree with the percentages I have given, entirely, with entire reason.

Q. That is, you think that the coal that was wetted down would increase 2 per cent—3 per cent?

A. At 3 per cent.

Q. The question which I asked you really was whether that would be in addition to the general percentage of from 2 to 4 per cent, or from 2 to 4½ per cent, to which you have previously testified.

A. I think it would, necessarily.

Q. To what extent would it increase those percentages, assuming that half the coal is wetted down in this fashion. I am referring now simply to barge coal; that is to say, we have from the rainfall, according to your statement, an increase in weight of from 2 to 4 or 4½ per cent; now, we have an artificial wetting going on during half the year on certain coals, the barge coal, and the barge deliveries being about the same, half year [1419—1357] in and half year out; now, I am asking you the per cent to which the barge coal would be increased in

(Testimony of S. W. Parr.)

weight, taking it all in all, by reason of the artificial wetting.

A. Well, you are asking me to distribute the percentage of the amount of barge coal to the total coal.

Q. No, I simply have reference to the barge coal itself.

A. It would increase it over the normal increase of atmospheric conditions to the extent of the 3 per cent distributed to the total percentage.

Q. And then if they wet but one-half of the barge coal, that would mean distributing the 3 per cent over the total of the barge coal, it would mean $1\frac{1}{2}$ per cent? A. $1\frac{1}{2}$ per cent.

Q. And that would make an overrun on the barge coals from moisture and oxidation and artificial wetting amounting to what?

A. If we figure the minimum of 2 per cent due to ordinary conditions, and $1\frac{1}{2}$ per cent, that will make $3\frac{1}{2}$ per cent for the minimum, and from $5\frac{1}{2}$ to 6 per cent as the maximum, so far as the barges are concerned.

Q. Assuming that the barge deliveries during this period were approximately 700,000 tons, roughly speaking, can you figure out what the total increase in weight on all of the coal would be, that is, what the percentage would be on all of the coal due to this artificial wetting in the barges? -

A. Yes, sir, that would be a simple matter.

Q. What is it?

A. $1\frac{1}{2}$ per cent on 700,000 tons,—that is the num-

(Testimony of S. W. Parr.)

ber you mentioned, I believe. [1420—1358]

Q. Yes, and the total importation and handling is 2,000,000 tons.

A. It would be 0.52 per cent, a trifle over $\frac{1}{2}$ of 1% on 2,000,000 tons.

Q. Considering the artificial wetting which goes on in the barges, the total per cent of gain which would come to all of the coal from moisture, from rainfall, humidity and oxidation, and from this artificial wetting, would be from $2\frac{1}{2}$ to $4\frac{1}{2}$ or 5 per cent, would it?

A. Yes, sir, within the range of from $2\frac{1}{2}$ to $4\frac{1}{2}$ or 5 per cent.

I visited Nanaimo in December last and made some experiments there in connection with the weighing of coal on scales. The coal there is weighed in trains of 20 cars.

In order to test the variation element of that scale, or any scale, it is necessary to see what a substance—what a mass—will weigh with the beam just free above, which would be called an upbeam, and just free below, which would be called the down beam, and the variation in weight of the mass would show the variation of the scale. That does not mean that it is a rising beam or a falling beam, but it means the beam which approaches the top and still does not touch, within the limits of being able to see daylight through the space; and the same thing with the down beam, which is not a falling beam, but which tests the delicacy of the scales with the beam near the low point. All of the cars, one at a time, were

(Testimony of S. W. Parr.)

passed over and weighed with this factor of the up-beam and the down beam, and the difference computed for the total mass of coal in the cars. [1421—1359]

Q. What did that difference amount to per car?

A. 117 pounds per car.

The approximate net weight per car would be 10,000 pounds. I made a comparison between the weights taken on an upbeam and the weights taken on a down beam and the weights taken on an exactly even poise. The difference between an upbeam and an exactly even beam amounted to 452 pounds; as between the even beam and the down beam it amounted to 1900 pounds; that is the percentage between the evn beam and the upbeam was .22; the percentage between the even beam and the down beam was .94; that is the difference on a whole train and not per car. The weight of the whole train on an even beam was 207,666 pounds.

I have made tests of the scales on the Folsom Street bunkers.

Q. What do you get there as the average difference between an upbeam and an even beam, an exactly even beam?

A. The difference in percentage is 0.20 of 1 per cent, weighed as I have described, not as a rising beam but as the upper limit of accuracy with the beam not touching above.

Q. What would be the difference between an even beam and a down beam, for instance, on those scales?

A. 0.18 of 1 per cent.

Q. Suppose the weighing were with what may be

(Testimony of S. W. Parr.)

called a rising beam, that is to say, the beam starts to rise from the bottom, and is caught, and comes up at such a rate that the weigher thinks it will come to a rest somewhere between there and the top, and he clamps the scale and catches the weight quickly, would [1422—1360] that process increase or diminish the difference between the weights which you got with an upbeam, as you call it, and an even beam?

A. It would very materially increase the difference.

Q. Did you notice any other factors at the bunkers or any other thing at the bunkers which would increase the difficulty of weighing or increase the factor of error due to weighing with a rising beam?

A. Probably the vibration to which the mounting of the scale is subjected would be the most serious source of error.

Q. What were those vibrations due to, or, rather, when did they take place, when did you observe them?

A. The most evident vibration is due to the passing of the train under the weighing-house; wind currents are serious sources of error, also. I think those two are the most noticeable sources of error in the mounting of the scales on the bunkers on Folsom Street.

A bucket loaded full and containing lump and fines mixed as they come will weigh more than a bucket containing simply fine coal. I made tests here to ascertain whether that is the fact. First I filled a

(Testimony of S. W. Parr.)

tub with screenings or fine coal only, as it came from the belt on the bunkers. This bucket weighed 921 pounds. The same bucket filled to the same height with lump and fine coal mixed weighed 1098 pounds, being a difference of 177 pounds. Those were weight of the coal only. The percentage of difference is 19.16. I also weighed a bucket made up wholly of lump coal. That bucket was heaped somewhat higher—its weight was 910 pounds net, being less, therefore, than either of the other buckets. [1423—1861]

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Q. In addition to the weighing of the tubs down there at the barges, did you make any experiments or tests where you could get at the matter more accurately, that is, estimate the quantity of the coal, the cubic contents of coal, more accurately, and then weigh them?

A. We have a number of tests in which we use a straight edge to bring the tubs to a level, which would not depend simply upon the eye, to gauge the variation in weights of tubs under more exacting conditions of filling.

Q. Let me ask you this question first: As a matter of fact, you took a laundry tub and a can, did you not, and made the same experiments?

A. Yes, sir, so that the measure could be a struck measure; a tub, for example, of that sort, which would weigh 91 pounds of coal, fine coal struck level,

(Testimony of S. W. Parr.)

with lumps and fine, would weigh 113 pounds, being an increase of 22 pounds, or a variation of $24\frac{1}{2}$ per cent as between the fines, only, and the lump and the fines. That experiment was repeated sufficiently to make it evident that the range was somewhere easily between 17 per cent and 24 per cent, depending on the amount of lump and the amount of fines. The higher percentage, that is, 24 per cent, was in a case where the fines amounted to about 50 per cent, half and half, half lump and half fines. The garbage can repeated those experiments, because the struck measure could be a little more easily secured, and the variation in percentages between fines and lump ranged between 15 per cent and 19 per cent; the mixture of lump and fine being 15 per cent heavier than the fines alone, or 19 per cent [1424—1362] heavier than the fines alone.

Q. Did you make any experiments or tests with the buckets on the barges, to ascertain how full or what weight of coal they had to contain in order to tip? A. I did.

Q. Will you state what you did, Professor Parr, and also state what you found?

Mr. ROCHE.—Do I understand you to claim that the witness personally made the experiment?

Mr. OLNEY.—Yes, he was there.

Mr. ROCHE.—Or merely watched them?

Mr. McCUTCHEN.—He directed them.

Mr. SULLIVAN.—Did he attend the engine?

Mr. OLNEY.—He supervised it.

Mr. SULLIVAN.—We object to that on the same

(Testimony of S. W. Parr.)

ground that we objected a little while ago, it amounts to self-serving conduct on the part of the defendants. We don't know how the engine was handled by the man in charge, or how the hatch-tender performed his duty. All this witness saw was what we ourselves saw there the other day. He saw the tub containing a certain quantity of coal, and he saw them tip the tub in the bunker; that is all he can testify to.

Mr. OLNEY.—He saw more than that, Mr. Sullivan.

Mr. SULLIVAN.—We submit that he should not be allowed to testify to that matter unless we know just how the engine was manipulated.

Mr. McCUTCHEN.—One of these witnesses testified that he was on the bridge of the "Korea" on the night of the 18th of December, and that he saw tubs which were not weighed, which were only half filled, discharged into the chute; and he said in another case he could see down at least one foot [1425—1363] into the interior of the tub, and that such tubs were discharged into the chute—

The COURT.—Didn't we see these experiments ourselves the other day? What was the use of going down there and watching those things, if we must now have a witness come in to testify to them, and in addition to that, under circumstances we are not acquainted with?

Mr. McCUTCHEN.—The only point is, if your Honor please, that he made the measurements.

Mr. OLNEY.—He made the measurements, and he got the weights and the portions.

(Testimony of S. W. Parr.)

Mr. McCUTCHEN.—Your Honor and the jury didn't make the measurements the other day. We want to show by the witness that a tub that is so empty that a witness could see into it one foot could not actually be dumped.

The COURT.—Didn't we see that ourselves and find out we had to smash things to do it?

Mr. McCUTCHEN.—I don't know to what height the tub was filled on those occasions.

Mr. STANLEY MOORE.—And in regard to the running of the engine, your Honor, I am informed that they banked away there until they knocked the whole rigging down, so it would not make much difference whether it was Eddie Powers running the engine, or somebody else; on the occasion of these experiments, he even outdid Eddie Powers.

Mr. SULLIVAN.—We object to any experiments made for the benefit of this witness' observation. We have all seen just exactly how the engines are operated and how the tubs are operated.

The COURT.—The objection is sustained. [1426—1364]

Mr. OLNEY.—We note an exception.

On more than one occasion I went down to the barges to make tests for the purpose of ascertaining whether or not these tubs would tip. In the course of making those tests I endeavored to fill the same bucket at different times to exactly the same height. I was particularly careful in that regard.

Q. What differences in weight did you find in

(Testimony of S. W. Parr.)

those buckets, or between the same bucket weighed at different times, and loaded each time, as you say, to the same height, as nearly as you could get it?

Mr. SULLIVAN.—With the same kind of coal, or different kind of coal at different times?

Mr. OLNEY.—Q. Was it the same kind of coal?

A. It was. On the “Theobald,” tub No. 2 was taken and filled, seven tests being made, the filling being as nearly exactly to the same point each time, with weights as follows: net, 921, 1098, 1034, 1041, 1084, 1053; I think I should omit the seventh one; I said there were seven, but the seventh was lump, only, and it weighed 910, but the filling was higher, because of the difficulty of getting lump, coarse coal, or to see whether we could put on enough to make it weigh as much as the fine coal.

Mr. SULLIVAN.—Q. How much did that weigh?

A. 910 pounds. Then on the “Comanche” one weight was 1390 net, another was 1340. Tub No. 2 on the same barge—

Mr. SULLIVAN.—Q. That was No. 1?

A. Yes, No. 1; the first “Comanche” experiment with tub No. 1 gave weights 1390 and 1340. Tub No. 2 gave weights of 1400, 1360, 1370, 1400. Tub No. 4 on the barge “Nanaimo” gave 966, 986, 930. Those are all the weights that I [1427—1365] have. I will say that these tubs on the different barges are not comparable, the tub on one barge is not comparable with the tubs on another barge, necessarily.

Mr. OLNEY.—Q. Did you observe the amount of coal which could be added to or taken from a tub

(Testimony of S. W. Parr.)

apparently full without changing the practical appearance of the tub? A. I did.

Q. What would it amount to?

A. It would seem evidence that two scoopfuls, for example, of coal, spread over the area of the top of a tubful would hardly be noticeable by the eye. Two scoops would amount to about 40 pounds easily on the average; so that I do not believe the eye could detect a variation of that amount. I think three or four scoops would make enough of a difference in the surface level of a tub to make it evident to the eye.

Cross-examination by Mr. SULLIVAN.

I am now, and have been for a number of years last past, on the staff of professors at the University of Illinois. In a certain sense I am also at the present time employed by the Western Fuel Company as an expert. The first work that I did for this company was last August. The individual who saw me at that time on behalf of that company was Mr. Mannon, an associate of Mr. Olney. My compensation was to be a per diem. The gross amount of my retainer fee was not determine. The most important consideration to me was the stipulation that I should find the facts in the case without regard to whom they would favor. My per diem was \$25. I was to be paid in [1428—1366] addition for such analytical work as I should do, but I have not yet made up my bill for that work. The per diem has not been running continuously since last August. There has been a gap of about one hundred days. I

(Testimony of S. W. Parr.)

usually charge \$10 per sample for analyses and I have worked up about 10 samples for the Western Fuel Company.

The first work I did for the Western Fuel Company was to go to the mine at Nanaimo and take samples of the coal. I was there about three or four days. I went into shaft No. 1, a distance of approximately a mile. That was in the North Workings. That section of the mine was at that time in operation, but no coal was taken out on the days that I was there. Professor Sommermeier of the State University of Ohio was with me.

We took out 70 or 100 pounds of coal from the face of the vein, broke that down, sampled it and took away with us about a 5 pound sample, being the amount prescribed in such cases by the bulletins of the United States Government. I did not pick out that 5 pounds for a sample. I took it out according to the prescribed methods.

Q. What do you call the prescribed methods?

A. It is quite an item of detail.

Q. In general terms can you tell us?

A. In the first place, it is to break the lumps to a uniform size, heap them in and cone and quarter them, so that you will take alternate quarters or opposite quarters; in this case you would then have a 40 lb. sample, we will say. It is further broken down, so that now the pieces are perhaps the size of a walnut, and they are mixed and coned and quartered and the opposite quarters rejected. These quarters remaining are further [1429—1367]

(Testimony of S. W. Parr.)

crushed. This is all done on a canvas or oil-cloth surface, so that absolutely no coal will get out of place or be lost. It is again mixed and coned and quartered until the sample obtained is a fair accurate representative of that mass to begin on, amounting to about 5 lbs. This is taken to the laboratory; it is first sealed in a screw top can, wrapper thoroughly with electric tape, so that there can be no changes in moisture content. That is in brief the method as outlined in the bulletin.

The coal was crushed in the mine itself at the face of the vein and was there segregated into the 5 pound sample. I took said sample in the can with me east and there analyzed it. I took no samples from the bunkers at Nanaimo, but I did take some from the cars on the track. There were, I think, 14 cars on the track at the time. I took samples from at least two and I had three samples in all. No one of those samples was taken from more than one car. The method of sampling was exactly a duplication of the method pursued at the face of the vein and which I have heretofore described. These car samples were also put in air-tight cans and taken east by me to my laboratory. I have no personal knowledge as to the duration of time during which the coal in the cars had been exposed to the weather before I took the samples. There was no rain while I was in Nanaimo. The sun was shining most of the time. There was evidence of rain, however, on the coal that I worked with. I don't know whether they played the hose on the coal or whether the water came from

(Testimony of S. W. Parr.)

the heavens above. I did not see any hose in proximity to the cars at any time. I did not notice any rain around on the streets or houses at Nanaimo. I am certain, however, that I found water in this [1430—1368] coal on the cars. I have a report of the examination that I made on the samples that I took east. One of the sheets is already turned in as evidence. It covered both the coal taken from the cars and from the mine. It recorded an experiment to show the water capacity of the coal at different seasons. The Nanaimo coal is a low moisture coal, by which I mean that it naturally has in itself a comparatively slight amount of moisture. All of the coal which I got at Nanaimo was of this type.

Q. How was that moisture in the coal, is it in chemical composition or is it simply there in its natural state—is it there in the separate gases or in the natural state of water?

A. The story as to how water is in coal is rather a long and complicated one.

* * * * *

It may be in the form of excess water which you can see, and the coal looks wet; it may be in the spaces of the coal, the texture of the coal, so that the coal will look dry and be dusty; but it may be as high as 14% of water under different conditions; it may be a chemical constituent of the coal which does not appear under any of those heads.

Mr. SULLIVAN.—Q. Well, isn't it generally found by the chemist to be in the form of gases, which is hydrogen and oxygen?

(Testimony of S. W. Parr.)

A. That depends on what he is working for; if he is working for the chemical compounds, he would get it in a very different way.

Q. Don't you always make an analysis of coal to [1431—1369] ascertain the amount of hydrogen and the amount of oxygen, the amount of carbon in the coal, and sulphur, and the other constituents of the coal?

A. That is true in the case of certain work where the engineer wishes those constituents. It is not very frequently done.

* * * * *

Q. Now, when you took this coal with you to the laboratory, did you dry it at all?

A. When it was unsealed from the can it was weighed, immediately, before there could be any change in moisture content; then it was exposed to the air until it had dried out to a point where it would not lose any more water.

Q. Was it exposed to a warm air or air of ordinary temperature in the room where it was, that would be in the ordinary room of the laboratory?

A. That would be a matter of indifference, either way; a slightly elevated temperature, with a current of air moving over it would be one method, or it could stand out in the air and allow the water to evaporate by itself; the only point being to weigh the coal after it had been air-dried to see what was the amount of water which would go off readily in the process of drying in the air.

Q. Now, was this coal put in a dry room for the

(Testimony of S. W. Parr.)

purpose of allowing the moisture to evaporate from it?

A. Well, I hardly know what you mean by a dry room.

Q. You say it was air-dried, was it not?

A. It was air-dried.

Q. What was the amount of humidity in the air there as compared with the humidity in another room of [1432—1370] the laboratory?

A. The humidity may have been lower; it probably was.

Q. Isn't it purposely made lower for the purpose of drying the coal out?

A. So that the time could be cut down, yes.

Q. How long had it been exposed to this air?

A. 24 hours.

Then we weighed the coal. These coals drop in the process of air-drying on an average of $\frac{1}{2}\%$. We had the coal in the can probably 2 weeks. It was exposed to a temperature slightly higher than the normal temperature at that time for 24 hours to dry it out, and, after that exposure, I noticed a depreciation in weight of the coal equivalent approximately to $\frac{1}{2}$ of 1%, by reason of the loss in moisture during that period of time which represents the loss of moisture in the coal from the time the can was opened until the air-drying process was complete.

Mr. SULLIVAN.—Q. Suppose that coal was left in an open can instead of being put in a sealed can, air-tight can, would it weigh more or less at the time

(Testimony of S. W. Parr.)

you exposed it to this extraordinary temperature, or at the time it was weighed at the laboratory?

Mr. McCUTCHEN.—The witness hasn't said that it was exposed to any extraordinary temperature.

Mr. SULLIVAN.—He said it was not the ordinary, and if it was not the ordinary temperature, it must have been extraordinary temperature.

A. Precisely that same method of getting at the air-dry loss is obtained by leaving it perhaps two days [1433—1371] in the atmosphere of the laboratory, but that amount of moisture is immaterial to the chemist. He only wishes to bring the coal to a point where, when he works with it it will not take on more water, as he weighs it, because it is extremely sensitive to moisture changes, or it will not lose moisture; he only wishes to bring it to a point which is the nearest equilibrium to the moisture in the atmosphere, so that when he works upon it from day to day it will not vary in his hand. Now, that is an indifferent point. There are still 2 or $2\frac{1}{2}$ per cent of moisture in the coal which he goes after later. This point that you are striving at now has no relation to the coal, and it is an indifferent point to the chemist; it is a point as near the equilibrium as he can get the coal for careful work. If a can were left open and transported from Nanaimo to the laboratory, you would be obliged to have an accurate weight at the mine upon scales which would weigh to one part in 10,000; that would be impractical; the nearest we can do is to seal it up and prevent changes of moisture until it gets to the laboratory. There

(Testimony of S. W. Parr.)

we can reach these totals with care.

Q. Suppose that can were opened and the coal were allowed to remain in the can for 24 hours, say in an atmosphere like the atmosphere in this room here now, how much moisture would there be lost, do you suppose?

A. It might amount to one-tenth of one per cent; I can only guess at it.

Q. It might amount to one-tenth of one per cent. Suppose it was out in the air?

A. It would amount to more.

Q. It would amount to more on account of the wind and a greater amount of evaporation?

A. Certainly it would.

Q. So, then, the coal would become lighter by reason [1434—1372] of that exposure to the air either in the room or on the outside?

A. It would.

Q. By reason of a certain quantity of moisture?

A. Yes.

Q. Is this moisture visible to the eye that you can notice in the coal after subjecting it to the temperature for 24 hours? A. It is not.

Q. It is apparently, if it is in the coal at all, it is in a chemical combination, is it not? A. It is not.

Q. How is it, then, you cannot see it; can you squeeze it out of the coal or crush it out of the coal?

A. You can't.

Q. If you can't crush it out of the coal, how do you know the water is there?

A. By weighing it accurately before putting it into

(Testimony of S. W. Parr.)

a drying-oven, and weighing it after it comes out.

Q. Let me understand you : you get this coal, weigh it, as soon as you take it out of the can, subject it to more than ordinary temperature for 24 hours, then weigh it again, and it weighs less, one-half of one per cent less, you come to the conclusion that the loss is loss of moisture, don't you? A. Yes, certainly.

Q. Suppose you had taken that coal after 24 hours' exposure to this atmosphere and crushed it and pressed it in any conceivable form, could you squeeze any water out of it? A. You could not.

Q. Isn't it a mere guess on your part, that [1435—1373] this loss of substance is a loss of water? A. It is not a guess.

Q. It is not a guess? A. No.

Q. Well, is there any mechanical process known to the chemist or anyone else or to any mechanic, by which you can take 5 lbs. of coal exposed for 24 hours and get the water in its normal condition out of that coal?

A. That is one of the every day occurrences in the laboratory; it is one of the easy things to do.

Q. How do you do it?

A. By putting the coal in a closed vessel and conducting the gas as it comes off through a condensing apparatus so that the water will condense in the form of a drop of moisture or in a substance where the water will be taken up and weighing the actual water that comes off from the coal.

Q. Does not that prove that the water is due simply to the presence of oxygen and hydrogen in the gas

(Testimony of S. W. Parr.)

that may not be united in the coal?

A. I cannot consent that oxygen and hydrogen are water.

Q. What makes water? What are the constituent elements of water?

A. Hydrogen and oxygen in combination.

Q. That is what I said, isn't it?

A. Absolutely not.

Q. Oxygen and hydrogen in combination make water, don't they?

A. If they are in chemical combination.

Q. In chemical combination A. Yes.

Q. Now, will you explain to the jury how [1436—1374] it is you cannot see the water after this exposure, and you do see water after you subject it to a certain amount of heat or a certain process?

A. You cannot see the moisture in this air, can you? But if it gets enough to form raindrops you can see it. That is a simple illustration.

I have never before testified as a witness on behalf of the defense in any case where the Government was prosecuting parties for defrauding it out of duties.

I have several times analyzed coal for the purpose of determining the amount of oxygen and hydrogen in it. Both oxygen and hydrogen in coal weigh something.

Q. They are both gases?

A. Not in coal; they are not gases in the coal.

Q. You say they are not gases in the coal?

A. They are not.

(Testimony of S. W. Parr.)

Q. If, by any mechanical process you can discover water in the coal, how is it you are able to say there are not gases formed in the coal?

A. Hydrogen and oxygen constitute sugar. Sugar is not a gas.

Q. I am talking about the separate gases.

A. But they are not separate in coal.

Q. Are you sure of that?

A. Why certainly I am.

Q. Why do they conclude that they escape in the form of water by reason of the drying process before you weigh the coal a second time, after having weighed the coal the first time?

A. May I ask if you mean why the hydrogen and [1437—1375] oxygen escape?

Q. No; why do you conclude that the hydrogen and oxygen escape in the form of water before you weigh the sample the second time?

A. Because if I have any doubt about its being water I could collect it in such a form as to test it and whether it was water or oil or any other substance.

Q. Did you make those tests in this particular case?

A. I did not.

Q. You did not make that particular test in the case of any one of these five samples, or four samples rather?

A. As to whether it was oil or water?

Mr. McCUTCHEN.—The witness asks you a question, Mr. Sullivan?

Mr. SULLIVAN.—Q. I say did you make this particular test by which you could determine abso-

(Testimony of S. W. Parr.)

lutely that it was water in the case of any one of these four samples you analyzed?

A. The method of analysis was such that it could not have been anything but water.

Q. That is not answer to the question, Professor.

A. Well, indirectly I did make that test; a chemist would say,—

Q. Indirectly you did make the test. What was the test you made?

Mr. OLNEY.—What were you going to answer. A chemist would say what?

A. A chemist would say that the method he employed for determining those constituents [1438—1376] would show that it couldn't have been anything but water, hence that would prove that it was water.

Mr. SULLIVAN.—Q. You say indirectly you made a test. Explain the manner in which you made this indirect test.

A. The coal was dried at a temperature which would liberate the water, and a temperature which is especially adapted for the liberation of water—

Q. What was that temperature?

A. It was 5 degrees above the boiling point of water at the altitude where the work was done.

Q. Five degrees above the boiling point?

A. Two hundred and seventeen degrees Fahrenheit.

Q. You have analyzed quite large amounts of bituminous coal of the eastern estates, have you not?

A. I have.

(Testimony of S. W. Parr.)

Q. How does the moisture content of bituminous coal in the east compare with the moisture content of coal from Nanaimo?

A. We call the east, east of the Alleghany Mountains; Pennsylvania and West Virginia and Maryland though are almost identical in water content with the coals of Nanaimo.

Q. How are they in respect to other constituents?

A. Some of those same coals are very similar in the amount of gaseous or volatile matter which those coals may be made to give off; others are lower in that constituent.

Q. How does the amount of sulphur in the Nanaimo coal compare with the sulphur in the eastern coals?

A. It [1439—1377] is within the range of variation of sulphur in the eastern coals.

Q. So that the eastern bituminous coal is practically the same as the Nanaimo coal; is that so?

A. Very many of them are; not all of them by any means.

Q. Well, the average eastern bituminous coal.

A. No, not the average; coal from specific districts are very similar to Nanaimo coal.

Q. Is it not the invariable rule that coal exposed to the atmosphere for any length of time will lose in weight? A. It is not.

Q. Is it the invariable rule that coal exposed to the atmosphere will gain weight? A. It is not.

Q. What is the rule as to gain or loss of weight by exposure to the air?

(Testimony of S. W. Parr.)

A. There is no rule, it depends upon the quality or type of coal and the atmospheric conditions.

Q. Is not the loss of coal generally complained of by the railroads in the east due in a great measure to evaporation of moisture in the coal when stored?

A. Those coals that I have described do not lose *the* evaporation to any very great extent. If there is a loss on high moisture coals it is ascribed to evaporation. Many of those coals are given a tolerance on account of moisture, ranging from 1 to 15 per cent.

Q. How does nut coal compare with the bituminous coal? Is nut coal found in different kinds, bituminous and anthracite, or is nut coal a special quality of coal?

A. It is not a special type of coal; it is a kind of any type. [1440—1378]

Q. It may be a kind of bituminous coal or a kind of anthracite coal. A. It may.

Q. It is termed nut, on account of its shape, I suppose, the shape of the particules of coal; is that it? Why is it called nut coal?

A. It is not a definite term, I would hardly know how to define it; approximately walnut size perhaps would be the commonest interpretation of the term.

Q. What is the kind of coal that is found in Vermillion County, Illinois, bituminous coal or anthracite? A. Bituminous.

Q. And how does that bituminous coal compare with the kind of coal that is found in Nanaimo?

A. There is no comparison, they are not the same type of coal at all.

(Testimony of S. W. Parr.)

Q. What is the moisture content of that coal as compared with the moisture content of Nanaimo coal?

A. It will vary from $13\frac{1}{2}$ to $14\frac{1}{2}$ per cent as it comes from the mine.

Q. That is, that coal is a high moisture coal?

A. It is a high moisture coal.

Q. And what kind of coal is that found in Williamson County, Illinois? A. It is a bituminous coal.

Q. It is a high moisture coal or a low moisture coal?

A. It is a high moisture coal but not so high as the Vermillion County coal. It will average from 10 to 12 per cent in moisture.

Q. Does that coal increase in weight or decrease in weight by exposure to the atmosphere for any length of time under ordinary conditions?

A. If it is shipped in open cars from Vermillion County, a distance of 35 miles, coal [1441—1379] which has been under my inspection for 50 months, for all that time the variation in moisture loss or gain has been less than a half per cent. The same coals however, shipped from Williamson County, a distance of 175 miles, without rain upon them, and only exposed to dry weather conditions will lose moisture sometimes to as much as 2 per cent.

Q. Assume that the coal is left in an exposed bin for a whole year, will it increase or decrease in weight?

A. I have just completed experiments on six carloads of coal stored in bins such as you describe; those

(Testimony of S. W. Parr.)

coals from Williamson County went in with a moisture content of 10 per cent. They now have a moisture content of nearly 20 per cent—19 and a fraction.

Q. How long were they exposed?

A. They have been exposed six years to rain and weather, drying out and wetting up.

Q. What was the total increase in weight?

A. The total increase in weight was approximately 9 per cent.

Q. The coal from Vermillion County also increases in weight, does it, when exposed in an uncovered bin for a year or more?

A. It would be subjected to the same law as governed in the case of the Williamson County coal; in fact there is a bin of the same size side by side with this other experiment.

Q. There would be a like increase?

A. There would be.

Q. And take the coal from Sangamon County, Illinois; is that a high moisture coal or a low moisture coal? [1442—1380]

A. It is a high moisture coal.

Q. And will that increase in weight in an uncovered bin, in an exposed bin, for a year?

A. It depends entirely on the weather conditions.

Q. Well, then, take the ordinary normal weather conditions. A. If it is a fine coal—

Q. Well, say, take nut coal. I am referring to nut coal now in these different case.

A. It would increase in weight.

Q. It would increase in weight, to what extent?

(Testimony of S. W. Parr.)

A. Over a period of one year it would be difficult to say, possibly 3 or 4 per cent.

Q. Increase? A. Increase.

Q. Would screenings of the Vermillion County coal increase in weight or decrease in weight if exposed for one year in an open bin?

A. They would increase.

Q. To what extent?

A. If you mean by screenings a finer coal so far as divisions are concerned than the nut coal they would increase more than nut coal, possibly 5 or 6 per cent.

Q. To what extent will they increase?

A. Perhaps 5 or 6 per cent.

Q. And if those coals in these different counties were stored in Government bins would they increase or decrease in weight?

A. If they were stored in bins in which there was no access of water, the chances are they would lose in weight.

Q. Now, take the screenings from Williamson County, [1443—1381] if those were exposed for a year in an uncovered bin, would they increase in weight or decrease in weight?

A. The ultimate result would be a decrease owing to the fact that there is more moisture to be lost than oxygen and other conditions to be gained.

Q. Where the bin was exposed?

* * * * * * *

A. Understand the question to be as to a covered bin.

(Testimony of S. W. Parr.)

Mr. SULLIVAN.—Q. Assuming the screenings from Williamson County were in an exposed bin, would they increase or decrease in weight?

A. They would increase in weight.

Q. To what extent? A. Possibly 5 or 6 per cent.

Q. Would you say that also about screenings from Sangamon County, stored in an exposed bin?

A. They would increase in weight.

Q. Does coal increase or decrease in weight by reason of oxidation?

A. The result of oxidation is always an increase.

Q. Is this a correct statement of the fact, Professor:

“The storage of coal has been thought by some investigators to result in a considerable loss in weight. If the coal heats considerably and fires occur in the storage piles, there is undoubtedly a great loss in weight, but it is still an open question as to how great this change is in storage under fair average conditions. The change in the weight of air-dry or wet coal cannot be considered in this connection. The exact weight of dry coal must be ascertained by some means. The coal must be weighed and then dried in an oven at some certain temperature [1444—1382] for an exact determination of the amount of moisture in it at the time, as it is not possible to get the coal into such an air-dry condition before and after storage that it will contain exactly the same percentage of moisture each time.”

This refers to certain experiments made:

“The coal in these experiments was weighed, sam-

(Testimony of S. W. Parr.)

pled carefully, and the moisture determined at 105° C. The weight of the moisture was then deducted from the weight of the air-dry coal, and the resulting weight of dry coal was used in making all comparisons. The results are given in Tables 3, 4 and 5. The larger samples (Table 3) show a loss of about one and one-half per cent in weight in two cases out of six, the other four show no change within the limits of experimental error, and it is doubtful whether even these two are not chargeable to possible discrepancies in moisture determinations rather than to any actual change in weight. The results of these experiments show only that any change in weight that does occur is very small in amount and is not to be considered unless the coal has heated considerably."

Is that a correct statement of the proposition?

A. It is, and is entirely consistent with what I have been saying. You are talking about coals which heat in storage and put where there has been active combustion.

Q. Now, I show you some tables here of analyses of coal that was analyzed, coal taken from Vermillion County, nut coal, Williamson County and Sangamon County, and screenings coal.

Mr. OLNEY.—What is that you are reading from, Mr. Sullivan? [1445—1383]

Mr. SULLIVAN.—This is Professor Parr's work on "The Weathering of Coal."

Q. I show you table 6, showing the analysis of coal made.

(Testimony of S. W. Parr.)

A. What is the particular point you wish me to look at?

Q. Does not that table show that nut coal of Vermillion County exposed in a bin, an open bin for a year decreases in weight a certain percentage?

A. You mean by this column here (pointing)?

Q. Yes.

A. That column is a measure of the heat in the coal and it is headed at the top, a decrease of these various percentages, 1.06, 1.06, 2.13. That is a decrease in the heat units of the coal.

Q. And not in the weight of the coal?

A. There could be no decrease in the heat unless there was an increase in some nonheat producing substance which in this case is either oxygen or water; so that that column verifies the statement I have already made that there is an increase in weight of some noncombustible which decreases the heat capacity by those figures.

Q. Did you make a memorandum at that time showing the increase or decrease in the coal?

A. I would not have to; it is on the face of it.

Q. There is nothing on the face of that showing the increase or decrease of the coal, is there?

A. There is to a chemist, certainly.

Q. Does this *decrease* at the head of the column refer to decrease in the heat power of the coal only?

A. It does, to the heating power of the coal only; [1446—1384] to the number of heat units in the coal. It is a heat quantity decrease and not a weight decrease; the two things are opposite.

(Testimony of S. W. Parr.)

Q. Has it not been your experience, Professor, that coal stored in large quantities will evaporate to such an extent that there is considerable loss of weight in the coal?

A. I have had no such experience but the contrary is true.

Q. Does it make any difference whether the exposure is in dry weather or wet weather?

A. That depends, of course, on the size of the coal stored.

Q. If coal is stored in dry weather for six months, will the storage result in loss of weight by reason of evaporation or will the storage result in increase of weight by reason of oxidation?

A. What kind of storage do you have in mind?

Q. Say yard storage or open bunker storage?

A. And you are asking as to what will be the effect of oxidation?

Q. No, I am asking you whether coal exposed in dry weather for the period of six months will increase in weight or decrease in weight?

A. There are two processes going on,—the oxidation process may be overmatched by the volatilization process; it would be impossible to say.

Q. Cannot you give me an answer? Say, take the ordinary bituminous coal containing the elements the Nanaimo coal contains, if that is exposed to dry weather for a period of six months can you answer me this question, will it increase in weight or decrease in weight by reason of the storage? [1447—1385]

(Testimony of S. W. Parr.)

A. If it is a type of coal like the Nanaimo coal there will almost necessarily be an increase in weight by the storage, basing my answer on the theory that it is coal of low moisture content.

Q. So that if this coal is contained for six months in an inclosed bin, during ordinary dry weather, would that coal increase in weight or diminish in weight?

A. It would be impossible to say without knowing the size of the coal, and the humidity—

Q. (Intg.) In the hypothetical questions which you answered this morning, the size of the coal, if I remember rightly, was not given.

A. I beg your pardon.

Q. I did not understand that the size of the coal this morning in the hypothetical questions propounded to you was given.

Mr. McCUTCHEN.—The hypothetical question asked the witness to deal with the coal such as he had seen in the Western Fuel Company bunkers.

Mr. SULLIVAN.—Q. All right. Take the coal that you have seen, the Nanaimo coal, and assume that that is stored in a closed bin in quantities—

Mr. OLNEY.—Here in San Francisco?

Mr. SULLIVAN.—Q. (Continuing.) — In San Francisco, yes, for a period of time, in dry weather, would that coal increase in weight or decrease in weight? A. It would increase in weight.

Q. Assume that the coal was concealed, or suppose it was placed in the hold of a vessel, and the hatches were closed, for a period of six months, would it in-

(Testimony of S. W. Parr.)

crease or decrease in weight.

A. It would increase in weight. [1448—1386]

Q. Suppose it were inclosed in the hold of a vessel instead of six months, for six days, would it increase in weight or decrease in weight?

A. Theoretically it would increase; it would be a difficult matter to measure the quantity of increase in six days.

Q. Would that increase in weight be perceptible for the period of six days?

A. I am unable to say.

Q. Well, what is your best opinion as an expert?

A. You are measuring quantities of such small amount that it is difficult to say. If it would increase in proportion to the time I should say the increase would be evident, there would be an increase, whether it would be evident or not, would be another question.

Q. Now, take 3,000 tons of coal and put it in the hold of a vessel four days, and close the hatches; that coal you say would increase in weight during those four days, would it? A. It would.

Q. And that increase in weight would be a proportionate increase, would it not; that is, in proportion to the weight if the coal had been kept six months instead of four days?

A. It might, or it might not.

Q. In your opinion it might; is not that so?

A. It is possible that it would be a proportionate increase.

Q. Is it not probable that it would?

(Testimony of S. W. Parr.)

A. I cannot say. There would be other conditions that would enter into that that I would have to know before I would commit myself. [1449—1387]

Q. You answered the questions this morning involving all of the coal handled by the Western Fuel Company since 1906 very positively, did you not?

A. I think I did.

Q. And you cannot give a positive answer to the last question which I propounded?

A. You have not placed the conditions sufficiently accurate to make it possible to answer it positively.

Q. In answering the questions this morning you didn't know how much coal had been kept in the yard without being moved from any particular place, did you?

A. I did, in that I knew the gross amount for a month, month by month.

Q. That is, you know the amount that had been moved month by month?

A. I did, the average amount month by month.

Q. Did you understand that the coal was kept in motion all the time by reason of sales and shipments?

A. It didn't make any difference whether it was kept in motion, or not, so far as my opinion was concerned.

Q. So that coal, whether kept in motion or not, or whether stationary or not, according to your theory, will always increase in weight from the time it is commenced to be handled up to the time it is consumed; is that so?

(Testimony of S. W. Parr.)

A. As a man stands on top of the bunkers on Folsom Street and watches the coal in motion during a rainfall, he has no question about the fact of increase in weight while the coal is in motion. The same is true if the coal is standing still, he has no question about the increase in weight.

Q. Suppose a man stands on the bunkers and goes down there and stands on the bunkers every day for six months, during which six months there is not a particle of rain, and [1450—1388] he sees the coal come and go, do you say that during that period of six months that of necessity there would be an increase in the weight of the coal?

A. There would be, small in amount.

Q. By reason of what? A. Oxidation.

Q. What causes the oxidation of coal?

A. The oxygen of the air.

Q. Does oxygen of the air combine with the sulphur of the coal, or does it combine with pyrites or other substances in the coal?

A. When there is no heat in the coal the combination is mailing with a carbonaceous matter rather than with pyrites, but the two types of oxidation are common under conditions, so that both types of oxidation are possible at all times.

Q. What are the two different types of oxidation, Professor?

A. The oxidation of the carbonaceous matter is one type; the oxidation of the sulphur in the pyrites is another type.

Q. Which one causes an increase in weight?

(Testimony of S. W. Parr.)

A. Both of them.

Q. That process is very slow, is it not?

A. It depends on temperature and other conditions.

Q. Take a place where there is a normal temperature, like in San Francisco.

A. It is slow in comparison with the changes due to the filling of water but it is difficult to say what you would mean by slow.

Q. Let us take the month of June or July, for a [1451—1389] period of 15 days, where the temperature is normal, and there is an entire absence of rain, would the process of oxidation in that case be slow or rapid?

A. The term slow is so relative, I don't know what you mean by slow.

Q. Well, what difference would it make in weight; the amount of loss of weight would determine the speed or the slowness of the oxidation, would it not?

A. Yes, that's very good; I think in those conditions a change in say for that length of time might be covered by a half per cent. There are plenty of illustrations, however, where changes due to oxidation will reach 2 per cent.

Q. Do you say that in the period of 15 days' oxidation would be carried on to such an extent that the weight of coal would be increased one-half of one per cent?

A. I understood your first question to include a period of a month?

Q. No, 15 days I put it. A. 15 days?

(Testimony of S. W. Parr.)

Q. Yes.

A. Well, it might increase a half per cent in that length of time; it might increase one-quarter of one per cent in that length of time.

Q. It might increase one-quarter of one per cent or it might increase one-half of one per cent through oxidation alone?

A. This is possible, entirely possible.

Q. Can you conceive of this condition, Professor, where one of the barges of the Western Fuel Company was loaded with a cargo of coal on May 16th and the entire cargo was discharged by the 21st of May; and the increase amounted to $23\frac{1}{2}$ per cent during that period of time, no [1452—1390] rain in the meantime; can you conceive of any case where oxidation would be carried on to such an extent during a normal condition of weather?

A. I could not.

Q. Can you give any possible theory upon which the weight of coal under such circumstances increased during that period of time from May 16th to the 21st of May, the increase being $23\frac{1}{2}$ per cent?

A. Not to natural conditions.

Q. Not to natural conditions?

A. No, certainly not.

Q. Now, during that period of time, the Nanaimo coal such as you know it, would increase in weight to what extent, do you think, naturally through the oxidation process, that is, for a period of six days?

A. Would you confine it to oxidation processes alone, may I ask?

(Testimony of S. W. Parr.)

Q. Or to any natural process which results in the increase in weight in coal, during normal weather and in the absence of rain?

A. And over what length of time?

Q. Six days?

A. I do not think that oxidation processes and humidity processes in the absence of rain would change the weight of coal or increase the weight of coal *possibly* to more than possibly one-half per cent or one per cent.

Q. You said a little while ago that in 15 days, the increase in weight by reason of oxidation would be about one-quarter of one per cent and from that to one-half; now, I bring it down to six days; do you say it would increase in weight in six days one-half of one per cent?

A. But your first question related only to oxidation; you are admitting now the possibility of humidity in addition. [1453—1391]

Q. I am taking now the normal condition in San Francisco, and the absence of any rain.

A. But you didn't so define your first statement, but you do now.

Q. Well, what would be the increase in weight of coal, say like Nanaimo coal, during 15 days of normal weather in San Francisco, and where there is no rain at all, what would be the increase through oxidation or any other cause natural to coal?

A. It would be very difficult to say. There would be a slight increase in the coal.

* * * * *

(Testimony of S. W. Parr.)

Q. Do you think there is any humidity in the atmosphere outside to-day?

A. Certainly there is; 80 per cent is about the average of San Francisco humidity.

Q. All right; we will take San Francisco's humidity at 80 per cent. Assume the humidity is 80 per cent. Assume that the coal is exposed for about 15 days. Assume that the usual oxidation takes place, what would be the increase in weight during that period of time?

A. You have not included any temperature changes in the coal itself.

Q. Take the ordinary temperatures of San Francisco? A. I mean temperature in the coal.

Q. Take the normal condition of the coal.

A. You are assuming the coal at normal condition, and humidity at an average of 80 per cent, and oxidation and humidity processes are going on for a period of 15 days?

Q. As they usually go on, yes.

A. It would have to be given at rather wide limits, possibly from one-half to $1\frac{1}{2}$ per cent.

Q. During 15 days. Then a coal merchant can [1454—1392] make more money by storing his coal than he can by selling it, for six months?

A. That depends on what his margin of profit is.

Q. If coal increased at the rate of $1\frac{1}{2}$ per cent in 15 days, 3 per cent in 30 days, or 6 per cent in 60 days, it would pay him, would it not, to store his coal for six months before he sold any of it?

A. I have not said that that ratio would keep up.

(Testimony of S. W. Parr.)

Q. How long would this terrific rate keep up of $11\frac{1}{2}$ per cent for 15 days or 3 per cent for 30 days?

Mr. McCUTCHEN.—He didn't say 3 per cent in 30 days.

A. This variation in oxidation is a matter that varies from time to time, and there is no possible way of saying what would be the continuation of that condition, whether it would be a proportional change from day to day and from month to month, or not.

Mr. SULLIVAN.—Q. Suppose that kept up for two months, $11\frac{1}{2}$ per cent for 15 days, 3 per cent for 30 days, 6 per cent for 60 days and rain came along to boost it along, how much would the coal increase in weight if one inch of rain fell at the end of 60 days?

A. You have introduced conditions which I have not conceded at all. There is a limit to oxidation property. You cannot oxidize sulphur after there is no sulphur to oxidize. How could you increase the weight after the sulphur is all gone?

Q. As I understand it, the oxidation takes place in the substance of the coal if there is no sulphur there at all, does it not?

A. If there is no sulphur there at all?

Q. Yes; can oxidation take place in the coal in the absence of any sulphur in the coal?

A. Yes, it can. [1455—1393]

Q. And oxidation can take place as long as there is any sulphur in the coal left?

A. There cannot in this type we are speaking

(Testimony of S. W. Parr.)

about, which is oxidation by atmosphere under normal conditions, there is a saturation point beyond which the oxidation will not go; and it is absolutely absurd to assume that oxidation continues from month to month and from year to year; that is an absurdity on the face of it.

Q. How long does oxidation continue, Professor?

A. At normal temperature?

Q. Yes, at normal temperature.

A. I don't know; it varies.

Q. About how long does it continue?

A. It grows less and less until it has completed the saturation for which it has set out and then it stops; the longer it goes the less it is in amount.

Q. How long does it take in normal weather with this Nanaimo coal for oxidation to reach that stage?

A. That is impossible to say. No one has followed the case out.

Q. What is your best judgment?

A. I would not attempt to answer.

Q. Can you fix the period beyond which it won't go, beyond which oxidation won't continue?

A. I should say that so far as human experience goes you could say in 100 years perhaps it would be complete.

Q. Then oxidation might continue 100 years; is that the fact?

A. I didn't say that; I said that if human experience would go to that extent, but the vanishing point, it is [1456—1394] at a lower and lower point;

(Testimony of S. W. Parr.)

there comes a time when it is so small it would be impossible to measure.

Q. The vanishing point might be 100 years hence, and the oxidation becomes less and less as you reach that vanishing point; is that what you want to say?

A. The oxidation becomes less and less.

Q. It continues for at least 60 days, does it not?

A. Not in amount. It is greater the first 6 or 8 days than it is the last 6 or 8 days.

Q. It will continue at least 60 days as a rule, will it not, to an appreciable extent?

A. Probably to an appreciable extent, but not in the ratio that it started out; no one can tell what the relative increase in oxidation at any one time is compared to another time.

Q. Take the case of a single lot of coal stored in the yards, 100 tons or 1,000 tons, oxidation will continue in that coal from the time it is deposited in the yard, for at least 60 days, will it not?

A. I presume it will.

Q. In that coal what would be the increase in the weight of the coal under normal conditions, assuming the humidity to be 80 per cent, and assuming the usual oxidation takes place?

A. I think I have given as an average amount of increase due to oxidation at about a half per cent.

Q. For the whole sixty days. What would be the increase in the weight of the coal for those 60 days?

A. I think a half a per cent would be a conservative estimate if you included the humidity. You are talking now about oxidation.

(Testimony of S. W. Parr.)

Q. I am talking about the ordinary humidity of 80 per cent, as you call it, for 60 days. You say the ordinary [1457—1395] increase would be one-half of one per cent?

A. Including humidity it might be more than that.

Q. That is, including the ordinary humidity?

A. Humidity and oxidation of all sorts.

Q. How much would it be? How much would it be in your opinion? A. For a period of 60 days?

Q. Yes.

A. I think the range might be perhaps from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent.

Q. From $\frac{1}{2}$ to $1\frac{1}{2}$ per cent; for 30 days what would it be? A. I don't know.

Q. A little while ago you said it would be from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent in 15 days; is there any difference in the extent of the oxidation which takes place during the period of 15 days and the amount of oxidation which takes place during a period of 60 days?

A. There might be. It is not a constant and you cannot say by one period of time what it will be for a corresponding period of time later on.

Q. It is all a mere matter of conjecture, is it not, mere guesswork?

A. Under the conditions which you prescribe it would have to be guesswork.

Q. Yes, that is what I thought. Take this case of the barge "Comanche" which took on her cargo on the 16th of May and discharged it fully on the 21st of May, increasing its weight $23\frac{1}{2}$ per cent; what would be the normal increase under ordinary condi-

(Testimony of S. W. Parr.)

tions which you would allow for that cargo due to oxidation and ordinary humidity in the air, for those six days, and due to any other causes naturally affecting coal, excepting rain?

A. I think it might occur within a range of possibly one half of $1\frac{1}{2}$ per cent [1458—1396] increase due to those conditions.

Q. Then this increase of weight for the period of six days would be substantially the same as the increase in weight through oxidation for a period of 60 days; is that a fact?

A. It might be and it might not.

Q. So, then, as a matter of fact, it does not make any difference as far as the increase in weight is concerned whether the cargo is subjected to oxidation for 6 days or for 60 days?

A. That does not follow. That is not a conclusion that can be drawn. I said in my first period of time, we will say for 6 days, that the range might be from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent. Suppose there was an increase for those 6 days, an increase in weight of $\frac{1}{2}$ per cent; suppose in the last period of time the increase has gone on until it reaches $1\frac{1}{2}$ per cent, what is there inconsistent in my statement?

Q. Let me see if we understand you. You said you assumed the process of oxidation to go on until in 60 days the increase in weight would range from $\frac{1}{2}$ of one per cent to $1\frac{1}{2}$ per cent; is that correct?

A. I said the range might be within those limits.

Q. Now, you have also in response to my questions said that in the case of the "Comanche" the increase

(Testimony of S. W. Parr.)

in weight under oxidation, with the ordinary humidity, for the period of 6 days, would be from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent? A. It might be from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent.

Q. So that logically it necessarily follows, does it not, that there is no practical difference in the [1459—1397] amount of increase in weight between a cargo subject to this exposure for 6 days and a cargo subject to exposure for 60 days?

A. That does not follow at all.

Q. That is about as close as you can come to it, is it not, Professor, as to the increase in weight for any particular period of time, 6 days or 60 days?

A. With the very vague conditions under which we are discussing the case I should say so.

Q. Is there any point of limit beyond which the weight is increased by the absorption of water rain?

A. Will you please ask that again?

Q. What percentage is the weight of ordinary coal, Nanaimo coal, to what extent can it be increased, that is, the maximum extent by the addition of water?

Mr. OLNEY.—You mean to the saturation point.

Mr. SULLIVAN.—Yes, to the saturation point.

A. It depends entirely on the percentage of the fine material in the coal.

Q. Then the average Nanaimo coal discharged from a barge—

A. (Intg.) There is a limit beyond which the increase due to moisture would not be possible, giving the coal an average opportunity to drain.

Q. What is that limit? In other words, what is the point of saturation?

(Testimony of S. W. Parr.)

A. Assuming that coal has we will say 25 per cent of fine material or slack, as it is called, I think the saturation limit would probably be 8 or 9 per cent.
[1460—1398]

Q. That is the maximum extent of the increase by the addition of moisture, as I understand you.

A. Such moisture as it will retain.

Q. That is, such moisture as it can retain.

A. May I add one other condition, that this moisture addition covers a comparatively short period of time.

Q. You say it covers a period of 7 or 8 days, or two weeks, say? A. Yes.

Q. Even if the water is added to the coal by means of a hose, a Pacific Mail Steamship Company hose, or by reason of a downpour of rain. A. Yes.

Q. Now, I direct your attention to the "Nanaimo," which took aboard a certain quantity of coal on the 3d day of February, 1906, and completed the discharge of that coal on the 10th day of February, 1906, and the increase in weight was 32½ per cent.

* * * Assume the whole barge full of coal.

A. I should say that an increase in weight to the extent that you claim is beyond what could be normally expected from the addition of water alone.

Q. Is it beyond your comprehension, or the comprehension of any scientist or any chemist, that that increase could have been due to oxidation or any other cause natural to coal which causes an increase?

A. It is.

Q. In other words, there must have been some-

(Testimony of S. W. Parr.)

thing peculiar done in the weighing of that coal in order to increase it to that extent; is not that so?

A. I would not attempt to say what was done to it, but it was not due to natural causes.

Q. It was not due to natural causes; there was something wrong about it?

A. I do not know; that [1461—1399] might be explained on other bases.

Q. Now, take the case of the "Theobald" which loaded a cargo of coal, average coal, on the 29th day of June, and fully discharged the cargo on the 6th day of July, 1906, and no rain prevailing at that time; what ought to have been the amount of increase of weight in that coal during that period of time, 6 days in July and two days in June, 8 days; give me a maximum amount of increase that ought to be found in that cargo of coal?

A. I could not give you a definite figure; it would have to be within limits again, as I did in the other case.

Q. Would it be from $\frac{1}{2}$ of one per cent to $1\frac{1}{2}$ per cent, as in the case of the 6 day cargo?

A. I think it would be within those limits.

Mr. SULLIVAN.—Q. Take the case of the "Ludlow," which took on a cargo of coal on the 27th of June and discharged it fully on the 16th of July, about 20 days all told; now, during that period of time, I suppose the natural increase due to oxidation and other causes ought not to have been any more than from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent?

(Testimony of S. W. Parr.)

A. If it didn't include rainfall, that would be the limit, I should say.

Q. And if it did include rainfall it would be not any more than 8 or 9 per cent as a maximum; is that so? A. Yes.

Q. What quantity of rain would have to fall upon a cargo of coal say of 100 tons, or 1,000 tons, say, in order to have the point of saturation reached?

A. If it were coal which had approximately 25 per cent of fines, an amount of moisture which would raise the weight to 8 or 9 per cent, I would say would reach the limit of saturation, whether it was a large amount or a small amount.

(Witness continuing.) The quantity of rain would depend entirely upon the area to which the coal was exposed. In the case of these bunkers that I have seen, or in the yard, it would be necessary to take the square feet of area in a given bunker; it would not make so much difference with regard to the quantity of coal. [1462—1400]

I know that the coal at Folsom Street remains in the bunkers a comparatively short time. You cannot see the oxidation of the substance of coal, nor is the oxidation of the sulphur in the coal generally visible. To a very slight extent, that is to say, in proportion to the weight that is increased, and the heat value thereby decreased, oxidation affects the commercial value of the coal. You cannot increase the weight of coal by noncombustible material without decreasing the heat per given unit of weight.

Q. Now, Professor, where spontaneous combus-

(Testimony of S. W. Parr.)

tion arises and no water is added to the coal, does the coal increase in weight or diminish in weight?

A. That would depend upon whether the oxidation was carried to an extent where fire and smoke resulted; if there was no escaping of gases and volatile material, the oxidation would result in an increase in weight, even though there would be no water added to the coal.

Q. And, of course, the loss by reason of oxidation in case of actual fire would be in proportion to the amount of smoke and fire. A. Yes, sir.

Q. You say the Australian coal is peculiarly subject to oxidation? A. It is.

Q. Is that a bituminous coal also? A. It is.

Q. In transit from Australia to California, does that coal increase in weight, or diminish in weight, as a rule?

A. There are two processes going on, one of oxidation, and one of evaporation, I would suppose because of the region through which the coal passes. [1463—1401] The chances are, I would say, that as between the two, an average or resultant effect would be that there would be a slight loss in weight.

Q. That is, the loss of evaporation would be greater than the increase of weight by oxidation?

A. I think it might well be so. That is a point on which I have no data.

Q. You understand, of course, the coal crosses the equator once. A. Yes, sir.

Q. Does heat increase the oxidation?

A. It does.

(Testimony of S. W. Parr.)

Q. The greater the heat the greater amount of oxidation?

A. The more rapid is the oxidation, and presumably the greater amount.

Q. The more rapid the oxidation the greater the increase in weight? A. Yes.

Q. It takes about two months, does it not, to make the trip from Australia to California—60 days?

A. No, it does not, I think about 33 to 35 days, ordinarily.

Q. And during that period of time, what, in your opinion, is the increase in weight by oxidation, making no allowance for the loss in weight by evaporation?

A. I think perhaps it might be covered by the same limits we gave before, one-half to one and a half per cent.

Q. One-half to one and a half per cent, although the coal is in transit for quite awhile through a very hot portion of the globe. A. Yes.

Q. And that would be more than offset, you believe, by reason of the evaporation.

A. That would depend [1464—1402] on individual cargoes; it would be impossible to make a general statement covering a case of that sort.

Q. Take an ordinary cargo, under ordinary conditions prevailing in Australia, and from Australia to California.

A. It would be a very difficult matter to say whether the amount of oxidation exceeded or was less than the amount of evaporation.

(Testimony of S. W. Parr.)

Q. Now, we will take the case of a shipment of coal from Nanaimo to San Francisco; I understand it takes about four days for a cargo to reach San Francisco; from the time the coal is put upon the ship, until it is discharged from the ship at the Folsom Street bunkers, the process of oxidation continues right along, does it not? A. It probably does.

Q. And more rapidly than at a later stage?

A. Well, the fresher the coal I would say possibly yes, but that is also offset by the fact that the fresher the coal the more it loses in weight due to the evaporation of the water, so that it is impossible to make a general statement covering the relative amount of those two processes.

Q. If the cargo is covered over, if the hatches are closed, there is very little evaporation, is there not?

A. Very little evaporation.

Q. And in that case, there would be an increase in weight, rather than a decrease in weight, would there not, during that period of time?

A. I would not be willing to say that.

Q. Well, what is your opinion, Professor, from your knowledge of coal?

A. It is very difficult to formulate an opinion where two processes are going (on), which are substantially equal in amount and say which will over-balance [1465—1403] the other. I do not see how it would be possible to make an exact statement which would be required to cover the case in hand.

Q. In the case of Australian coal, which passes across the equator, you would say that the increase by

(Testimony of S. W. Parr.)

oxidation is offset by the decrease by evaporation during the period of sixty days.

A. I didn't say that.

Q. I mean 33 days.

A. I said I would not like to make a statement as to which exceeded the other.

Q. Didn't you say one would about offset the other?

A. I said it would be a difficult matter to say.

Q. Well, what is your opinion?

A. Under some conditions, it would be a very easy matter for the oxidation to surpass the amount of loss due to evaporation; under other conditions, the evaporation might be greater. The two are nearly equal in amount, and it is difficult to say which would exceed.

Q. Wouldn't there be more evaporation coming across the equator than there would be coming down from Nanaimo to San Francisco?

A. There would be more evaporation in all probability, because the vessels which carry the Australian coal are especially arranged for ventilation, because of the danger of oxidation, so that there would be more loss by evaporation in Australian coals than in the case of Nanaimo coals.

Q. Now, don't you think, under ordinary conditions, that would be the case?

A. That there would be more water lost in one case than in the other?

Q. Yes. A. I do.

Q. So, take the ordinary trip from Nanaimo to

(Testimony of S. W. Parr.)

San Francisco, in an ordinary collier, with hatches closed, the [1466—1404] evaporation is comparatively slight, is it not? A. Comparatively slight.

Q. Don't you believe as a scientist and an expert on coal that the evaporation in that case would not create a loss equal to the increase created by oxidation? A. That might be possible.

Q. Is it not true, then, Professor, that the increase in weight due to oxidation would more than offset the loss in weight due to evaporation?

Mr. OLNEY.—You are referring to a Nanaimo cargo?

Mr. SULLIVAN.—Yes, I am referring to Nanaimo cargoes.

A. It might be possible for the oxidation to be greater than the evaporation, but whether that is a case which would generally be true, or not, would be impossible to say, it seems to me.

Q. When you were subpoenaed as a witness—I mean before you were employed as an expert in this case, did you not understand that there were two very important questions to come before the court and jury, one was a question relating to shortages, and another one relating to overages?

A. I had a general understanding only.

Q. You knew also that the Government claimed, did you not, that the output of the cargoes in San Francisco after arrival, was in a great many cases much less than the amount of the intake at Nanaimo, the point of exportation?

(Testimony of S. W. Parr.)

A. I do not recall that I knew that statement specifically.

Q. Well, you knew that before you were examined as a witness, did you not?

A. Will you repeat the question again?

Q. I will put this question to you now. Did you [1467—1405] not know, before you were examined as a witness in this case, did you not know before yesterday that it was claimed by the Government in this case that the output of the cargoes in San Francisco were always or in a great many cases less than the amount of cargo taken in at Nanaimo?

A. I think I knew that that was the claim.

Q. And didn't you go over that particular phase of the case with counsel for the defense many times, or several times?

A. Probably we did; I do not recall specifically with regard to that point.

Q. What is that?

A. I do not recall specifically with regard to that point, that we went over it.

Q. Didn't you go over it at all with them?

A. You mean the matter of changes between Nanaimo and this point.

Q. Yes, whether the coal increased or diminished in quantity on the trip from Nanaimo to San Francisco.

A. I think not. I do not recall that we discussed that point especially.

Q. Didn't you give it as your opinion that the coal

(Testimony of S. W. Parr.)

increased in weight in transit from Nanaimo to San Francisco?

A. I do not recall that I gave that as my opinion.

Q. Will you say that you did not give that as your opinion?

A. I do not know that I have expressed that as my opinion, no.

Q. Well, is not that, in fact your opinion, that the coal increased in weight in transit from Nanaimo to San Francisco, instead of diminishing in weight?

A. That might be possible; I do not know that I am ready to say that. I have refused to say positively whether it would be an increase [1468—1406] or a decrease, because—

Q. (Intg.) As an expert, have you not at the present moment an opinion upon this question, as to whether coal, under ordinary circumstances, increases or diminishes in weight, in transit from Nanaimo to San Francisco?

A. I would have to figure a little on the proposition. I have testified that the tendency of all coal, upon being broken out from the seam is to lose moisture, and that the tendency of coal is also to absorb oxygen; now, whether these two processes would result in an ultimate loss or increase in weight over a short period of time is a very difficult question to say.

Q. You have testified, have you not, to the amount of increase in 2,000,000 tons of coal during the period of some six or seven years? A. I have.

Q. Where the coal was turning all the time, and

(Testimony of S. W. Parr.)

it is physically impossible to give a correct estimate; you have testified to that, have you not?

A. I have not testified that it was a physical impossibility to give a correct estimate.

Q. Well, don't you know it is a physical impossibility to give a correct estimate by reason of the fact that the coal is shifting all the time, and changing all the time, and has been shifting and changing, every day, every week, every month during the last six or seven years?

A. Not at all. It is a comparatively simple proposition.

Q. Is it not the same proposition for you now to determine as an expert, whether coal increases in weight or loses in weight in three or four days in transit from Nanaimo [1469—1407] to San Francisco?

A. In matters of change involving, we will say, one half per cent in amount, where it may be one-half per cent plus or one-half per cent minus, or fractions in the hundredths of a per cent, it is not an easy thing to say.

Q. Don't you know that if you said the coal increased in weight from Nanaimo to San Francisco in transit, that that answer would be hurtful to the defense?

A. Why, it might or might not; I don't see that it would.

Q. Don't you know that on account of the issues involved in this case, the answer would be hurtful to the defense?

(Testimony of S. W. Parr.)

A. I don't think the matters involved in the transit of coal are of enough moment to make very much difference either way.

Q. Don't you know that the Government in this case claims that the Western Fuel Company did not properly weigh the coal that came from Nanaimo to San Francisco, and that the shortages amounted to a very large sum?

A. I understand that is the claim.

Q. Now, you have testified as an expert that coal increases in five or six days by reason of oxidation from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent in weight, That is not an infinitesimal fraction; you do know, from your study, the amount of evaporation of coal under certain conditions, do you not? A. I do.

Q. As a scientist, you know that in a given time, and under given conditions, there will be a certain amount of evaporation from a certain quantity of coal, do you not?

A. Under certain conditions. [1470—1408]

Q. Now, will you say that you are unable to tell this jury the amount of loss of coal resulting from evaporation in an ordinary cargo of coal, say 3,000 or 4,000 tons, from Nanaimo to San Francisco, the voyage taking four days?

A. I said the difference between the plus and the minus would be small, and it is difficult to say; that is equivalent to saying that the two very nearly neutralize each other. Now, if you want to call it on the plus side, or on the minus side, you would be as able to do that as I would.

(Testimony of S. W. Parr.)

Q. Will you testify right now that in your opinion there is no loss at all of coal, or practically no loss of coal at all—

The COURT.—You mean in weight.

Mr. SULLIVAN.—(Continuing.) In weight, in transit from Nanaimo, the point of exportation, to San Francisco, the point of delivery.

A. The difference in weight due to the two causes between Nanaimo and San Francisco would be very slight, either way.

Q. Is it not your opinion that there is practically no loss, that the weight of the coal in San Francisco, upon arrival, is practically the same as it was at the time of exportation?

A. I would not say there was no loss; I would say that within the limits it may be a small amount plus or a small amount minus.

Q. Don't you mean by that that there is practically no loss at all?

A. It would be very small either way.

Q. What do you mean by small either way?

A. Well, I would say perhaps $\frac{1}{4}$ of a per cent variation, plus or minus. [1471—1409]

Q. That is, it might increase $\frac{1}{4}$ of a per cent in weight, or it might diminish $\frac{1}{4}$ of a per cent in weight.

A. The ultimate resultant of the two processes might be that amount, either way.

Q. Do you believe, Professor, that under normal conditions, in transit from Nanaimo to San Francisco, the shortage could be equal to 2 per cent?

(Testimony of S. W. Parr.)

A. I do not think it could, due to moisture changes.

Q. Or to any other change?

A. I do not think to normal, natural causes, such as would be chemical in character.

Q. Do you think the change could exceed $\frac{1}{4}$ of 1 per cent under normal conditions, that is, that the shortage could amount to more than $\frac{1}{4}$ of 1 per cent?

A. I would say that under normal conditions the limits would be perhaps a quarter to a half; it could hardly exceed that.

Q. Now, you are going to the half; under no circumstances, in your opinion, could it exceed one-half of 1 per cent?

A. I should think that would be the limit.

Q. How often have you been at the bunkers during the last month?

A. I probably have been there half of the days that have intervened.

Q. I want to go back to this other question for a moment: Assuming that the cargo is shipped in winter-time, when we have rains along the coast, is it not probable that the coal would increase in weight from Nanaimo to San Francisco, rather than diminish?

A. You are assuming now that the cargoes are covered. [1472—1410]

Q. Assuming that the cargoes are covered.

A. And that there is no accession of rain.

Q. And there is no accession of rain to the coal.

A. I can hardly see any reason why the cargoes

(Testimony of S. W. Parr.)

would increase in weight during the winter months.

Q. Under no conceivable circumstances would you say thae either in the winter-time or in the summer-time, the hatches being closed, the loss could be any more than $\frac{1}{2}$ of 1 per cent?

A. I think that would be a fair limit.

(Witness continuing.) I made my experiments with the coal in the bunkers for the purpose of determining the weights, and for the purpose of finding out what quantity of coal would be contained in a bucket—fines and coarse—on January 20th. We weighed only two tubs on the “Theobold,” No 2 and No. 3. We didn’t fill the four tubs. The tare of No. 2 was 590 pounds; the tare of No. 3 was 503 pounds. We didn’t weigh any tubs on the “Comanche” with respect to fines and coarse. We weighed tubs No. 1 and No. 2 on the “Comanche.” The tare of tub No. 1 on the “Comanche” was 730; the tare of No. 2 was 600. We only used one tub on the “Nanaimo,” tub No. 4 with a tare of 574 pounds. We put three loads on it. If the tub was filled at the mouth to the water line, as they call it, and filled, say, to within one foot of the water line at the rear with coal, ordinary coal, it would not tip at the bunker.

Professor Sommermeier was with me during my experiments and examination last August. He took his own samples and I took mine. He has been with me many times but not always on my visits to the bunkers here in San Francisco, and he has also been with me at the yard. We have been working together as experts [1473—1411] for the defense

(Testimony of S. W. Parr.)

and have compared notes and I assume that we practically agree upon the main facts on which we are to testify. The experiments on the weight of tubs at the barges were made by us jointly. However, we have not been generally, though we have been frequently together in our experiments. He has his own line of work and his own conclusions and I have mine. We made out separate reports to the Western Fuel Company. He did not submit his report to me, nor did I submit mine to him before they were respectively rendered to the company, though we gave each other copies of our reports afterward and in most respects we agreed.

Q. In your testimony yesterday, you gave certain figures, you read certain statements from a book which appears to be Bulletin 41, issued by the Department of the Interior [1474—1411½] Bureau of Mines; did these figures deal with anthracite coal or with bituminous coal?

A. Sometimes anthracite, sometimes bituminous.

Q. And did you, in your testimony yesterday, give the minimum and the maximum figures for the purpose of showing variation?

A. I did, variations due to moisture and changes in weight.

Q. How is that?

A. Figures which showed the variation in moisture.

Q. These figures here showed the variation in moisture each month, did they not, according to your recollection? A. They did.

(Testimony of S. W. Parr.)

Q. And you took the highest and the lowest in each case?

A. I did not; I took the highest and the lowest in the cases I read; not necessarily the highest and the lowest, but I took what caught my eye as being the highest and the lowest.

Q. Had you gone over this report before?

A. I had.

Q. You had gone over the report before?

A. I had a copy of the report.

Q. And you marked the figures concerning which you intended to testify in this book, did you not?

A. I did.

Q. Now, for instance, in reading from the Bulletin, here, containing a report of an analysis upon coal taken from Pocahontas and New River run of mine, West Virginia, you gave the moisture contents in July as 1.63 and in January—

A. What page are you reading from, please?

Q. Page 39. [1475—1412]

Mr. OLNEY.—The witness did not state the dates, Mr. Sullivan.

Mr. SULLIVAN.—No, but he did state the percentage.

Mr. OLNEY.—He was asked to take the large differences.

Mr. ROCHE.—That was the question he has practically testified to.

Mr. SULLIVAN.—(Continuing.) And in January, 1910, moisture content 7.10, do you see that?

A. Yes.

(Testimony of S. W. Parr.)

Q. One is a low figure, and the other is the highest figure, 7.10? A. Yes.

Q. That coal at no time contained as high as 7.10 moisture in that pile from July, 1909, to January, 1910, did it? A. Please repeat that question.

Q. I say, the moisture content of that coal at no time exceeded 7.10 per cent.

A. Presumably not.

Q. That is more than twice the amount of average moisture contained during that entire year, is it not, in that coal?

A. That is quite possible, I have not figured it out.

Q. Now, is it not a fact that the average, which is down below there in the average, is 3.16 per cent of moisture content? A. I have not averaged it.

Q. You will see that the average is printed below there, 3.16? A. Oh, yes, very good.

Q. Less than half the maximum figure of moisture content which you gave yesterday?

A. Very good.

Mr. McCUTCHEN.—The witness was expressly asked to indicate the large differences.

Mr. ROCHE.—There isn't any question about that, [1476—1413] Mr. McCutchen, but we want to get before the jury the fact that he did select the maximum figures.

Mr. McCUTCHEN.—He was asked to do that. The witness did not mislead anybody; that is what Mr. Olney asked him to do.

Mr. SULLIVAN.—Q. Take page 37, showing the moisture content of the Sugar Load run of mine, Mil-

(Testimony of S. W. Parr.)

ler bed; you read there the moisture content of coal as 3.90 and 1.42?

A. I did, and I stated just before reading that that I had specifically taken the extremes to answer that question as it was put.

Q. And you gave the average of those two figures yesterday, did you not?

A. No, I didn't give the average.

* * * * *

Mr. SULLIVAN.—Q. You stated yesterday that the moisture content of coal was in July, 1909, 1.42, and in January, 1910, 3.90; you did not state that the average, though was 1.92, did you?

A. No, I did not.

Q. And 1.92 is less than one-half of the high moisture content of January, 1910, is it not?

A. It is.

Mr. McCUTCHEN.—May I ask, were those averages all obtained by adding together the low moisture content and the high moisture content and dividing the aggregate by two?

Mr. ROCHE.—No, of course not.

Mr. SULLIVAN.—By the number of months.

Mr. McCUTCHEN.—Oh, by the number of months. I thought it was a sample taken in one month, and then taken in another month.

Mr. ROCHE.—There are a great many months here that are far below that average. [1477—1414]

Mr SULLIVAN.—Q. What do you mean by the run of the mine, Professor?

A. The coal as it comes up in the cars as prepared by the miner below.

(Testimony of S. W. Parr.)

Q. Does not the run of the mine include all of the coal just as it comes from the mine, the lump coal, the fine coal, and all kinds of coal that is run out of the mine? A. Yes, sir, for the market.

Q. Don't you know that at Nanaimo the coal that is mined there is run over a screen before it comes out? A. It is not.

Q. It is not screened at all?

A. Before it comes out of the mine, it is not screened.

Q. Before it is shipped here and before it is weighed? A. It is.

Q. Where is it run over the screen?

A. At the tipple.

Q. You don't call that the run of the mine? That coal always contains less moisture than the run of the mine coal, does it not?

A. Which coal do you refer to, the screen coal?

Q. The run of the mine is the screen coal, the lump coal, and all kinds of coal you have mined in the mine, itself? A. It is.

Q. This coal at Nanaimo, before it is weighed, is passed over a screen, and only coal of certain sizes is weighed; is not that so?

A. All the coal is weighed, of whatever size.

Q. I mean, the ordinary coal is separated from the fines, is it not, by means of these screens. A. Yes.

Q. There is not as much moisture in this coal which is separated from the screens as there is in the ordinary run of the mine coal, is there, the coal that does not go over the screens? Is there not less

(Testimony of S. W. Parr.)

moisture in coal that [1478—1415] is free from the screen than there is in the ordinary run of the mine coal?

A. I do not see how that could be the case, when the coal immediately comes up from the bottom. The coal as it is broken off from the seam has the same moisture throughout the seam.

Q. Then do you say that the screenings weigh the same as the coal that is separated from the screenings? A. A ton of it would weigh the same.

Q. I am not talking about a ton of it, I am talking about the cubic contents of it; I mean to say the coal, itself, proper, is there not more moisture in a ton of screenings than there is in a ton of coal that is separated from the screenings?

A. In a ton of lump?

Q. Yes.

A. The screenings cannot lose the moisture so rapidly as the lump, hence the tendency is for the screenings to run a little higher in moisture.

Q. Let us take the case of the lump coal, separate from the screenings, put a ton of that coal in one place, and take a ton of screenings and put it in another place, won't the screenings contain more moisture immediately after the separation than the lump coal itself?

A. I cannot see why that would be the case, it certainly would contain more moisture a few days after, when the evaporation had had a chance to go on because the evaporation from the lump is easier than it is from the screenings.

(Testimony of S. W. Parr.)

Q. These cases here all indicate the moisture content of the ordinary coal which contains lump and screenings, and in some cases the screenings alone—these figures you gave yesterday, do they not? [1479—1416]

Mr. ROCHE.—Take a top table on page 39, Professor.

Mr. SULLIVAN.—Q. Where is the coal delivered to the Government, Professor, is it delivered at the mine, or delivered at the Government station?

A. Delivered at the Government building.

Q. This table here on page 39, which you referred to a little while ago, refers to analyses of coal delivered to the Government under contract; don't these variations here shown upon page 39 show the changes wrought by the weather, by the rain or snow, for instance, in January, 1910, the moisture was 7.10.

A. That would be impossible to state, unless we knew whether it was a car ship in a closed or box-car, or not.

Q. Do these figures here indicate the moisture at the mine, or the moisture at the place of delivery?

A. The moisture at the place of delivery.

Q. If the moisture content in July, 1909, was 1.63, and the moisture content in January, 1910, were 7.10, of necessity it must have been due to the weather, the change in the moisture content—is that not so?

A. Yes, sir, that would be the conclusion.

Q. And then, in February, the moisture content appears to be 4.35, or more than double the amount of the moisture content, 1.63? A. Yes.

(Testimony of S. W. Parr.)

Q. If this coal were screenings, instead of lump coal, the moisture content would be much greater on account of the fineness of the coal. It not that so?

A. That would depend entirely on the weather. The screenings upon leaving the mine would hardly have more than 2 per cent of moisture in them.

Q. How much?

A. They would have the moisture which [1480—1417] is characteristic of that particular seam; I do not know what it is.

Q. But the absorbent qualities of screenings are much greater than the absorbent qualities of lump coal?

Mr. OLNEY.—Have you completed your other answer, Professor?

A. I have not. I would say that so far as the tables are concerned, the indications are that the normal moisture of that coal, as it leaves the seam, would be about 1.2 per cent.

Mr. SULLIVAN.—Q. What would you say, Professor?

A. I would say that so far as the table states anything, the indications would be that the moisture content of the coal as it leaves the mine would be about 1.2 per cent.

Q. What table are you referring to now, Professor? A. The same one you have there.

Q. On page 39? A. Yes.

Q. Are you referring to the one above, or to the second table? A. To the middle one.

Q. To the middle one, that is right. And although

(Testimony of S. W. Parr.)

you testified yesterday that the moisture content of coal at a certain time was 7.10, the normal moisture content of the coal is 1.2 at the mine; that is the fact, is it?

A. I say that the indication of the table is to that effect, that is to say, the delivery in October in that table was 1.2; that is the lowest factor of moisture in that particular coal; hence, it is fair to assume that that coal came from the mine to the place of delivery without any climatic changes.

Q. What kind of coal was that?

A. Pocahontas coal, a low moisture coal.

Q. A bituminous coal, or an anthracite coal?

A. [1481—1418] Neither; it is a semi-bituminous coal, halfway between anthracite and bituminous.

Q. Now, assume that a ton of screenings were taken out of that mine, with a moisture content as usual, and a ton of lump coal with the moisture content as usual, in January, 1910, after the rainy weather set in, would not the screenings contain much more moisture than the lump coal, itself?

A. If they were subjected to the same amount of rainfall, the fine material would have a higher percentage of moisture.

Q. How much higher?

A. That would depend altogether on the fineness of the division. I will add this further in regard to that point, Pocahontas coal is a coal which is peculiarly liable to break down into fine material.

Q. Then that is an exaggerated case, is it not?

A. Pocahontas coal is all of that type. Pocahon-

(Testimony of S. W. Parr.)

tas coal has about the largest output of any coal in the West Virginia regions.

Q. I mean for the purpose of showing the moisture?

A. That was the purpose, to show the upper limit capacity of coal for moisture. [1482—1419] Having taken the four cans of coal from Nanaimo to my laboratory in Illinois, I set to work to analyze the coal within a few days. Those were the only samples of coal that I took from Nanaimo. I did, however, take samples of Wellington or Nanaimo coal from the bunkers in San Francisco. I presume I took as many as a dozen.

Q. How long after taking each sample did you analyze the sample?

A. It would be ordinarily a few days, possibly a week or ten days after taking the sample, during which time the sample was preserved in the same manner with a seal which would obviate any transmission of moisture.

Q. And each sample you analyzed for the purpose of ascertaining the moisture content?

A. That was part of the analytical work in each case.

Q. Did you analyze any of the samples which you took from Nanaimo, or which you took from the yards and bunkers in San Francisco for the purpose of ascertaining the increase in weight by oxidation?

A. Not with reference to the specific time in which they were in storage but as to the ability or rapidity of the samples to absorb oxygen.

(Testimony of S. W. Parr.)

Q. Did you at any time from the date of your original employment up to the present time make any test of coal for the purpose of determining the increase in weight resulting from oxidation?

A. I did.

Q. When?

A. On the samples which were taken at Nanaimo.

Q. Well, I understand you to say that you analyzed those samples with 2 or 3 days after the samples [1483—1420] reached your laboratory; is that so?

A. I did.

Q. How then could you make the tests *then* of that coal inside of 3 or 4 days after receiving the samples for the purpose of ascertaining the increase in weight resulting from oxidation?

A. By reason of the fact that the tests on the coal could be made after that time as well as before, with regard to the avidity of the coals for oxidation under the conditions that they were subject to. I made a report on these samples.

Q. That report does not show an increase in weight resulting from oxidation of the samples, does it?

A. It does not.

Q. Have you any report or did you ever make any report since you entered originally upon your employment by the Western Fuel Company showing an increase in weight or the percentage of increase in weight of any sample which was taken from either the Nanaimo mines or from the yards or bunkers in San Francisco?

A. There was no test as to the amount of oxidation

(Testimony of S. W. Parr.)

during the time in which the sample was exposed.

Q. No. You understood, did you not, when you were employed, that you were to testify to the increase in weight of the coal during a given period?

A. Yes.

Q. Resulting from oxidation? A. I did.

Q. Why then, if you knew that to be a fact, if you knew that one of the purposes of your employment was to ascertain the increase in weight resulting from oxidation, didn't you take a sample from the coal at Nanaimo and expose that to the air for a period of time, say for one [1484—1421] week to 3 or 4 or 5 or 6 months for the purpose of ascertaining the increase in weight resulting from oxidation during that period of time?

A. I exposed such a sample to such tests as would indicate to me the activity of that coal for oxidation.

Mr. SULLIVAN.—Q. Now, you have testified oxidation increases the weight of coal from $\frac{1}{2}$ of one per cent to $11\frac{1}{2}\%$ in six days or in 60 days. Now, to prove that fact, why did you not take samples of the coal from Nanaimo, or samples of the coal from the yards or bunkers in San Francisco and expose those samples for a given period of time, say one week or 30 or 60 days, so that you could come before this jury and tell this jury that from an actual experiment you ascertained that the weight of the coal was increased a certain percentage during that period of time by reason of oxidation?

Mr. McCUTCHEN.—I think counsel has inadvertently misstated the witness. My recollection is

(Testimony of S. W. Parr.)

that the witness stated from one-half to $1\frac{1}{2}$ per cent would be due to oxidation and to humidity.

Mr. SULLIVAN.—No, he did not.

The WITNESS.—Then I wish to correct the statement because, as I understood it, it included other things besides oxidation.

Q. The question that was put to you yesterday and the answer that was given clearly established the fact that you said that the increase in weight from oxidation alone ranged from $\frac{1}{2}$ of one per cent to $1\frac{1}{2}$ per cent in six days or in 60 days.

A. And then as the question proceeded, I insisted [1485—1422] that the humidity be a part of that change.

Q. Will you point that out in your testimony. I have the testimony here. Have you discussed this question of the increase in weight, within a given period of time, the weight increasing by reason of oxidation, with counsel on the other side since the adjournment yesterday afternoon? A. I have not.

Q. Have you in any way changed your views as to the total amount of increase in weight by reason of oxidation within a given period of time?

A. I have not.

Q. In your opinion, then, is that your testimony as was expressed yesterday?

A. If you will take my expression of yesterday in the manner in which I intended it—if I have given a different expression to what you think I have, it should be changed.

Q. Answer this question: if the weight of the coal

(Testimony of S. W. Parr.)

increased to such an extent as you have testified in your examination here as the result of oxidation, why didn't you take samples from Nanaimo or from the bunkers or yards in San Francisco and submit the samples to exposure for a certain length of time for the purpose of testifying to the actual increase in weight by reason of oxidation?

A. Because there are other tests which would apply to the avidity of the coal or activity of the coal in that connection, which would satisfy me.

Q. Now, isn't the only practical and sensible test for the purpose of ascertaining the increase in weight resulting from oxidation to take a sample of coal and expose it for a given period of time to the air?

A. It does not seem to me so. [1486—1423]

Q. It does not seem to you so?

A. No, it does not.

Q. Do you mean to say that you could take a piece of coal or a sample of coal, analyze it one day after it has come from a mine and testify to a jury as a result of that analysis how much oxidation would take place in that coal after six months' exposure?

A. I think that one day would be too small an amount of time.

Q. Do you suppose you could do it after 4 days or 10 days, make an analysis of the coal for the purpose of determining the moisture content and the other elementary content,—do you mean to say that after an examination 10 days from the time the coal was taken from the mine you can determine the amount or the percentage of the increase in weight

(Testimony of S. W. Parr.)

that will result from oxidation in a period of six months?

A. By tests such as I have applied and such as you read in your reference yesterday to a publication of my own, in which there was shown to be an increase in heat value, that was entirely proper for me, understanding as I do what that means, to judge from what is the behavior of the coal with regard to oxidation.

Q. This is a book of your own, isn't it, that you have just referred to and which I showed you yesterday? A. Yes.

Q. Do you know of any other works that have been published showing the effect of oxidation upon coal?

A. I do.

Q. Besides the works you have written?

A. I do.

Q. Do you know of any other works referring to the change or increase in weight resulting from oxidation? A. I do.

Q. Mention them please?

A. In a paper published by Dr. Porter of the United States Bureau of Mines; [1487—1424] in the Engineering Mining Journal, a journal in industrial chemistry, I cannot give the date—

* * * * * * * *

Mr. SULLIVAN.—Q. Do you know of any other works?

A. There is a large amount of work published by the Canadian Bureau of Mines which shows oxidation beyond any facts which I have given to you. I

(Testimony of S. W. Parr.)

have that book in the city, I do not have it here this morning.

Q. Are screenings more liable to oxidation than the average coal?

A. As a general proposition, the more finely divided the coal the more rapidly the oxidation.

Q. And the greater the increase in weight?

A. That would be the result.

Q. Now do you remember these experiments conducted by you and referred to in this book which I hold in my hand, written by yourself? A. Yes.

Q. I direct your attention to page 18, Table 3, change in weight of coal exposed to the air. Screenings from Williamson County, Illinois, in an open box on a roof, 311.8 lbs. Weighed December 15, 1908; reweighed June 17, 1909, or about six months afterward, weight 307 lbs. Loss, 4.8 lbs. a decrease in weight of 1.34%. That is correct, isn't it?

A. Yes.

Q. So that according to your own experiments, conducted by you and referred to in this book, there was an open box of coal weighing 311.8 lbs. exposed for about six months upon a roof and at the end of that time instead of there being an increase in weight there was a loss of weight equivalent to 1.54% of coal; isn't that so? [1488—1425]

A. That result must be taken in conjunction with other results.

Q. Will you answer that yes or no?

A. I will answer that as I have answered it.

Q. Doesn't that table there show that instead of

(Testimony of S. W. Parr.)

there being an increase resulting from oxidation, there was a decrease of 1.54% during that period of time in the weight of the coal?

A. The results show that *there* must be taken in conjunction with the results which were referred to yesterday.

Q. I am taking the results as depicted in this table alone. Does it not appear upon this table that upon the expiration of six months exposure instead of there being an increase resulting from oxidation there was a decrease in the coal, equivalent to 1.54%. Can you answer that question yes or no?

A. I will not answer it yes or no.

Q. Leave the record stand as it is. You also at the same time conducted an experiment with another box of coal taken from Sangamon County, Illinois; that box contained 227.7 lbs. on December 15, 1908; on June 17, 1909, it was weighed again and it weighed 224.4 lbs.; there was a loss of 3.3 lbs. There was a total loss in percentage during that period of time of six months, or seven months, rather, of 1.45%, according to this table; that is so, isn't it?

A. I will answer that in the same way; it cannot be interpreted without the accompanying facts that go with the table.

Q. Where were these experiments made?

A. At the University of Illinois. [1489—1426]

Q. What was the temperature during the summer months there in the year 1908 and 1909?

A. The ordinary summer temperature of that region?

(Testimony of S. W. Parr.)

Mr. McCUTCHEN.—I think it is proper to suggest to the witness if he desired to make an explanation he has a right to do so.

Mr. SULLIVAN.—As soon as I get through he can explain all he wants to.

Mr. McCUTCHEN.—Oh, no; he has the right to make the explanation in connection with his answers to these questions. He said that that could not be interpreted as you interpret it, and it should be interpreted with reference to the table which accompanies it. I think the witness has a right to explain.

Mr. SULLIVAN.—Q. Was there any fall of moisture in December and January and February, 1908, when this coal was exposed upon the roof?

A. In all probability.

Q. And that moisture did not result in an increase in the weight of the coal, did it—the moisture and the oxidations together didn't increase the weight of the coal during the winter months of 1908 and 1909—that is a fact, according to this table, is it not?

A. It is not. That table has nothing to do with that feature of the case whatever.

Q. Well, we will take the other case of a box of coal upon the roof, the coal being taken from Vermillion County, Illinois, November 11, 1908, according to your experiments and your tables, it weighed 289 lbs., on that date, didn't it? A. It did.

Q. And on June 17, 1909, it was weighed again, [1490—1427] was it not? A. It was.

Q. It weighed 288.9 lbs., didn't it?

A. I presume it did, according to the table.

(Testimony of S. W. Parr.)

Q. According to the table it did. This table was prepared by you, was it not? A. It was.

Q. And there was a loss there, was there not, of three-hundredths of one per cent?

A. It is so indicated there.

Q. So that in these three samples it appears from the experiments conducted by you in Illinois in 1909, after an exposure of six or seven months in an open box upon a roof of a building, instead of being an increase resulting from oxidation or from any other cause there was a decrease in weight in each case; that is a fact, isn't it?

A. I will not answer that question in the abstract.

Q. Answer it in the concrete then.

A. There are other circumstances that enter into the case, because it would not be fair to the situation, to the results rather, to say that there was an actual decrease.

Q. Well, you made this report, did you not, for the purpose of circulating it throughout the country at that time, to inform those who deal in coal of the qualities of coal and the effect of weathering of coal, didn't you?

A. The primary purpose of the publication was to show the amount of decrease in each value of coals exposed to the weather for different periods of time, and coals submerged under water. The primary purpose was to [1491—1428] determine the heat value.

Q. Well, the primary purpose was to determine the heat value. Was there not another purpose also, to notify the world, according to your experiments

(Testimony of S. W. Parr.)

and observations what the effect of weathering upon coal was? A. It was.

Q. The title of the books is "Weathering of Coal"?

A. Yes.

Q. Does not the weathering of coal include the effect of moisture upon coal, the effect of oxygen upon coal likewise? A. It does.

Q. This purports to be a clear and explicit statement of the effect of moisture upon coal, and the effect of oxidation of coal.

Mr. OLNEY.—You mean the tables or the book?

Mr. SULLIVAN.—The book itself.

Q. You have heard of other cases, have you not, where experts have gathered coal from different parts of the country for the purpose of ascertaining the effect of exposure upon the weight of coal? Out there, I will direct your attention to W. A. Powers; do you know W. A. Powers, Chief Chemist of the Santa Fe Railroad Company in 1907?

A. I ought to. He is one of my students and graduates.

Q. He has imbibed your ideas and acquired your practice of making examinations, hasn't he?

A. I presume he did.

Q. I will direct your attention to what you say about various experiments in this book, page 9: "W. A. Powers, chief chemist of the Santa Fe Railroad, [1492—1429] in 1907, carried out an investigation of the weathering losses of the coals used on that road. These coals covered a wide range of country, samples being tested from Illinois, Missouri, Kan-

(Testimony of S. W. Parr.)

sas, Colorado and New Mexico. One hundred pound lots of coal were stored in the open air and under water for a period of seven months. The coal stored under water is said to have lost from .26 per cent to 5.92 per cent in weight, and from .56 per cent to 8.75 per cent in calorific value. The coal stored in the open air lost in weight .60 per cent to 4.78 per cent and 1.10 per cent to 9.40 per cent in calorific value."

You understood from that, that Mr. Powers had selected coal from different states in 100-lb lots, put some lots under water and exposed other lots to the air and that during the period of seven months, instead of there being an increase in weight resulting from oxidation or any other cause, there was a decrease in each case or there was a decrease in the case of the lots exposed to the open air from .60 per cent to 4.78 per cent. That is correct, isn't it?

A. It cannot be stated in those terms without the accompanying result?

Q. I am stating it now in the very terms you have used in this book. Are these terms correct?

A. When they are all taken into consideration they are.

Q. Well, now, is oxidation something peculiar to Nanaimo coal or peculiar to this Wellington coal that you have seen, or is it something that occurs in all [1493—1430] coals? A. It occurs in all coals.

Q. It occurs in all coals?

Q. Now, what has become of the oxygen, where was the oxygen at that time; was it taking a vacation while this lot of coal was exposed to the elements

(Testimony of S. W. Parr.)

during that period of 7 months—was it working at all during that period of time?

A. It certainly was.

Q. Now, if it was working during that period oxidizing the coal why according to your theory was there a decrease in the weight of coal instead of an increase?

A. There are a good many elements that enter into the case. In the first place because these samples were put in boxes, small in amount, and on top of roofs, and the element of oxidation should be taken into account with the evaporation and all the other constituents that are present.

Q. Well, now, won't the oxidation in a hundred-lb. lot be proportionately greater than the oxidation in a thousand?

A. You would have other—

Q. (Intg.) Answer the question yes or no.

A. I won't answer it yes or no.

Q. Won't the oxidation in a hundred-lb. lot be proportionately greater than the oxidation in a thousand?

A. It will.

Q. So then, the better way of ascertaining the effect, the increasing effect of oxygen upon coal is to submit the oxygen to small lots of coal; isn't that a fact? [1494—1431]

A. That would be a fact if the other constituents and the other conditions under which it operates would remain the same.

Q. Well, you have testified that these 2,000,000 tons of coal increased to 2,062,000 tons by reason of oxidation here where thousands and thousands of

(Testimony of S. W. Parr.)

tons were not subject to oxidation in hundred-lb. lots—

Mr. OLNEY.—(Intg.) The witness has never testified to anything of that sort.

Mr. SULLIVAN.—I will stand upon the record.

Q. How many of these books were published?

A. What was the edition?

Q. This is Bulletin No. 38 Series of 1909, by S. W. Parr and W. F. Wheeler?

A. I don't know the number published.

Q. Did you give your counsel in this case copies of this pamphlet?

A. I think he has a copy; I am not certain about it.

Q. You had, however, this copy, while they were questioning you about the greater increase of coal by oxidation?

A. I think he did.

Q. You think he did? A. Yes.

Q. Did you tell him to look at that book and say, here, gentlemen oxidation instead of increasing the weight of coal decreases the weight—did you tell him that?

A. If I told him anything I would have told him what I told you yesterday when you referred me to the data.

Q. You would not tell them what you have told to-day, or what the book says?

A. I would be perfectly willing to, if the question came up. [1495—1432]

Q. If the question came up? A. Yes.

Q. Why is it that a small lot of coal is more subject to oxidation than a large quantity of coal?

(Testimony of S. W. Parr.)

A. If the small quantity of coal is placed under circumstances where oxidation is carried on, those facts would have to be observed and taken into account.

Q. Where does the oxygen come from that causes the oxidation or burning up of the coal, slow burning up of the coal? A. It comes from the air.

Q. Now, then, the air can more rapidly reach a 100 lb. lot of coal than it can a 1000 ton lot of coal, can it?

A. If the element of time is taken into account, there would be very little difference.

Q. That is, if a 100 lb. lot may be consumed to the extent of 10 per cent you say at given time, a thousand ton lot would take years and years to burn to the same extent, would it not?

A. The question related to the availability of oxygen for a small lot and a large lot. The transmission of oxygen to the mass of a large pile may take a longer time, but the supply of oxygen is inexhaustible.

Q. How did you handle this coal which you put upon the roof in Illinois? I refer to your table 3; in an open box, on the roof, 311.8 pounds, put on the roof; what size box was that?

Mr. OLNEY.—What page is that, Mr. Sullivan?

Mr. SULLIVAN.—Oh, you have it, have you?

Mr. OLNEY.—Yes, I have it.

Mr. SULLIVAN.—Page 18. [1496—1433]

A. I wish to refer to your question of a moment ago, as to the authorities and references.

Q. No, please answer the question; we will take

(Testimony of S. W. Parr.)

one subject at a time.

A. Bulletin No. 28 of the Experimental Laboratory of the United States Bureau of Mines, page 22. In the column here under experiments which were conducted with a view to all the varying conditions, the column is headed "Increase in weight due to oxidation, per cent": Illinois No. 9a, 1.68 per cent. Illinois No. 9b, 1.78 per cent. The same, 2.47 per cent. The same, 1.34 per cent. Illinois No. 11b, 1.03 per cent. Indiana No. 4, 1.32 per cent. Massachusetts peat, 1 per cent. North Dakota, lignite, 1.57 per cent. I skip 1, 2, 3, 4, 5, 6 samples, for the sake of time, in which the lowest is 0.4 of 1 per cent, but are all fractions of 1 per cent. Wyoming coal, with an increase in weight due to oxidation of 2.56 per cent. I repeat the statement I made before, that all the conditions must be taken into account, and these are carried out under those conditions.

Q. This is your language in this book here, is it not, Mr. Parr— Will you please let me look at that book, page 31 of your book: "Coal of the type found in Illinois and neighboring states is not affected seriously during storage, when only the change in weight and loss of heating power are considered. The changes in weight may be either gains or losses, and are probably never over two per cent in the period of one year." Is that correct?

A. That is correct when all of the circumstances are taken into account.

Q. So that you say when the coal is stored for the period of one year, the change in weight may be

(Testimony of S. W. Parr.)

either gains [1497—1434] or losses?

A. All Illinois coal has a content of water not less than ten per cent, but usually about fifteen per cent, as it comes out of the mine. All of the circumstances of the same must be taken into account.

Q. Is not high moisture coal more subject to oxidation than low moisture coal?

A. The lignites are more subject; they are high moisture coals, if you call them.

Q. I am talking about high moisture bituminous coals; aren't they more subject to oxidation by reason of the excess of water in them?

A. You will recall that oxidation takes place—

Q. Will you please answer the question?

A. I am answering the question, I hope. I am trying to answer it.

Q. You can answer that by saying "Yes" or "No," Professor, and then explain afterwards. Aren't bituminous coals more subject to oxidation by reason of the excess of water in them?

A. It does not necessarily have reference to the amount of moisture, but the amount of sulphur, which is the largest element in the case.

Q. The sulphur is one element in the case, but as I understand it, oxidation takes place by the union of oxygen with the sulphur in the coal, and also it takes place by reason of the union of oxygen with the substance of the coal, itself; is not that the fact?

A. Those two processes are going on.

Q. Is not the substance of high moisture coal more liable to oxidation in high moisture coal than the sub-

(Testimony of S. W. Parr.)

stance of low moisture coal?

A. I cannot say as to that directly; [1498—1435] the presence of moisture, or the absence of moisture, in itself, does not necessarily indicate the amount of oxidation of the carbonaceous matter. The presence of moisture or the absence of moisture does facilitate in a great degree the oxidation of the sulphur, and the resultant of those processes is termed the oxidation of the coal.

Q. Haven't you stated and written to the effect that high moisture bituminous coal is more subject to oxidation by reason of the excess of moisture in it than low moisture bituminous coal?

A. High moisture has in itself no oxidizing power.

Q. Does not the presence of an excess of moisture in coal aid the oxidation of the coal?

A. It does when it comes to the oxidation of the sulphur, but it has nothing to do with the facility of the oxidation of the carbonaceous matter.

Q. Then the oxidation of sulphur in coal is greater in high moisture coal than the oxidation of sulphur in low moisture coal; that is the fact, is it not?

A. Only in so far as the water helps out oxidation; if it is there in large amount, the oxidation may proceed farther, but there are other elements that must be taken into the case besides mere matter of water.

Q. But water must be taken into consideration as one of the elements?

A. There must be water to start the process.

Q. What is the sulphur content of the Illinois coal that was analyzed by you and experimented on by you

(Testimony of S. W. Parr.)

as shown by this Table C?

A. It ranges from a fraction of 1 per cent to 4, and 5, and sometimes 6; the latter is a rare instance, however. [1499—1436]

Q. And the sulphur content of the Nanaimo coal is very small, is it not?

A. It is smaller than the average of what I have given.

Q. Is not the sulphur content of Nanaimo coal smaller than the sulphur content of any of the Eastern coals that you have experimented on?

A. We have many Illinois coals which I think are included in that table, wherein the sulphur content is about the same as the Nanaimo coal.

Q. The sulphur content here of the Nanaimo coal varies 0.72 of 1 per cent up to 1.24 per cent; is not that a low average of sulphur content in any coal?

A. It is reasonably low, compared with the coals of the East.

Q. And that kind of coal containing such a small quantity of sulphur, is not as liable to oxidation as coal containing sulphur ranging, as you say, from a fraction of 1 per cent up to 5 and 6 per cent; that is a fact, is it not? A. That does not follow at all.

Q. It doesn't follow at all?

A. If all of the sulphur oxidized in the Nanaimo coal, and only a fraction of the sulphur of a higher sulphur content, the two cases would be the same.

A. Four per cent sulphur coal might only have 1-10 of the sulphur oxidized.

Q. That would depend on the amount of oxygen

(Testimony of S. W. Parr.)

that gets to it, would it not?

A. It depends on the amount of opportunity it has, temperature, moisture, and time, and fineness of division.

Q. Submit a high percentage sulphur coal to the same opportunities that a low percentage sulphur coal is subjected to, and the high sulphur coal will oxidize proportionately greater, [1500—1437] will it not, to a greater extent, rather?

A. That would not necessarily follow, at all. If the two coals were ground, for example, to the same degree of fineness, and subject to the same temperature and the same action of the elements, they would proceed reasonably together, but one would get through quicker than the other.

Q. What do you mean?

A. One would exceed the oxidizing capacity.

Q. Which one would?

A. The one that has the least check, the smallest amount of oxidizing material; but if you are going to oxidize all, for instance, if a 1 per cent oxidizing coal—and as I have already testified, the increase in weight would be five or six times the weight of sulphur oxidized, you can see at once that you would be going to an increase of weight which would be five or six per cent of the coal. Those cases would be very rare. I will say, however, that in a number of Canadian experiments, the increase in weight is shown to be as high as 11 per cent. I regret exceedingly I do not have those references here, but I can get them.

(Testimony of S. W. Parr.)

Q. That is due to and is on account of the sulphur content?

A. That is due to both the oxidizing substances of the coal.

Q. I will put this question to you: Won't coal that contains as high as 5 per cent of sulphur increase to a greater extent in weight by oxidation than coal that has only 1 per cent of sulphur?

A. That does not follow at all.

Q. That does not follow at all?

A. It does not necessarily follow.

Q. Supposing that all the sulphur in one coal oxidized [1501—1438] and that all the sulphur in another coal oxidized.

A. Then the one that had the highest amount of sulphur would have the greatest increase in weight.

Q. You read from the table, here, showing the percentage of increase in weight according to a report that you held in your hand a little while ago, showing that the increase in weight was as high as 4 per cent in some cases—I mean 2 per cent, rather, the increase in weight was from a fraction of 1 per cent to 2 and a fraction per cent; do you know how long these coals were subjected to exposure?

A. I do not have it in mind, I do not recall.

Q. Do you know whether they were subjected to exposure for a year or more?

A. I do not have the data in mind.

Q. Don't you know that in order to intelligently explain to the jury the degree of oxidation you should explain to the jury the length of time the coal is sub-

(Testimony of S. W. Parr.)

jested to exposure? A. I think that would be fair.

Q. You didn't do it in this case, though, did you?

A. I did not.

Q. Have you any means at hand now of learning, so as to explain to the jury how long these coals were subjected to exposure?

A. I think the bulletin probably states it.

Q. I wish you would point it out. But, before you point it out, I wish to direct your attention to the fact that the sulphur contents of these coals was largely in excess of the sulphur content of the Nanaimo coal, ranging from 0.58 of 1 per cent to 6.86 per cent. From that bulletin, there, show me how long that coal was subjected to exposure.

A. I read as follows: "The oxidation changes in every case [1502—1439] are sufficiently large to be of practical importance. The smallest change, that in the Ohio No. 5 sample, being 0.53 per cent, while the Illinois No. 9b sample showed a change of 2.47%. The Wyoming No. 3 sample showed an increase of 2.56 per cent in weight, and a decrease of 205 calories in heating value. The changes in weight correspond to a decrease in heating value of 144 calories, the final calorific value obtained being 75 calories lower than is accounted for by the changes in weight. Further results along these lines are desirable, but the values already obtained show very clearly that old samples of coal cannot be regarded as representative of the original coal in composition or in calorific value."

Q. Professor, do you think that is an answer to the

(Testimony of S. W. Parr.)

question I have put to you? A. I think it is.

Q. Then I will have to repeat it. It is not. Will you point out in this book any reference to the time that this coal was subjected to exposure?

A. I think I can find it, if I look through the details of the analyses.

Q. I will withdraw that question for the present. Do you know, and will you state, whether that coal was subjected to certain extraordinary heat, for the purpose of bringing about oxidation?

A. I will not state it.

Q. Or was that oxidation caused by the exposure to the air, and subjection simply to atmospheric influences?

A. I do not recall the details of the experiment.

Mr. OLNEY.—Now, Mr. Sullivan, right at this point, if you will kindly allow the witness to refer to the Bulletin and find there the conditions under which these samples were taken, I think that would be fair. [1503—1440]

Mr. SULLIVAN.—I wish he would.

Mr. OLNEY.—Q. Professor Parr, if you will begin at page 19, at the bottom of the page, you will find there a statement of the conditions, and I will call your attention to this, that in the table of percentages, on page 22, you will find the laboratory number, which gives the number of the sample, and then you will find the same number in the tables given on page 20, and from that you will be able to answer Mr. Sullivan's question as to the length of time that these samples were undergoing these tests.

(Testimony of S. W. Parr.)

A. I take, for example, the first one, Illinois coal, No. 9a, increase in weight due to oxidation, 1.68 per cent; Illinois No. 9b is given as having 0.17 per cent change, increase in weight—that would be change in weight.

Mr. SULLIVAN.—Q. 0.17 of 1 per cent?

A. Yes, sir, 0.17 of one per cent, for a period of four days, 0.47 of 1 per cent increase for a period of 20 days; 0.46 of 1 per cent after a period of 42 days; 0.19 of 1 per cent in 25 days; nothing after 172 days.

* * * * *

Q. Where was it you read from, Professor? Can you tell from this book the quantity of coal used in the test? A. I can.

Q. I wish you would find it.

A. "In order to investigate the question of the extent of alteration of the samples when kept in a finely powdered condition as prepared for analysis, portions of a number of such samples were put in weighed bottles, which were securely closed with rubber stoppers. These bottles were kept in the laboratory and weighed from time to time," and so on. [1504—1441] The amount of the material is not given in that part of it.

Q. The coal was pulverized, was it?

A. It was. That item with regard to the quantity of coal is undoubtedly there somewhere, if the time of the Court can be given to look it up.

Q. Did oxidation, in that case, then, take place by virtue of the moisture in the coal, itself, and not by reason of the moisture in the atmosphere?

(Testimony of S. W. Parr.)

A. All coals have sufficient moisture to start this oxidation and keep it up.

Q. Now, let us see the change in one of the samples; you do not know the quantity in the sample, do you? A. It is undoubtedly given there.

Q. In four days, there was a change in weight of 0.17 of 1 per cent; that is correct, is it? A. It is.

Q. In 20 days, there was a change of 0.47 of 1 per cent; in 42 days, there was a change of 0.46 of 1 per cent.

A. There is another case where a change in 7 days was 0.22 of 1 per cent.

Q. In 25 days, there was a change of 0.19 of 1 per cent. In 172 days, less than 6 months, there was no change at all. A. No additional.

Q. In 124 days—about four months, say—the coal, instead of increasing in weight, diminished in weight, did it not, according to the sign there?

A. There was no further increase.

Q. There was a decrease of 0.33 of 1 per cent, was there not, according to the table—minus .33, does not that indicate that at the end of 124 days, instead of being an increase in weight there was a decrease of about $\frac{1}{3}$ of [1505—1442] 1 per cent, according to this table?

A. That might be; I would want to look into the details to see what that means.

Q. That is what it means. You read the table a moment ago.

A. On the face of the table, and without further explanation, it would seem to indicate there was a de-

(Testimony of S. W. Parr.)

crease in the weight.

Q. A decrease in the weight, in 124 days?

A. No, in the last period.

Q. That is 124, isn't it? That may be a mistake, may it? I don't know. It says there, 124 days between weighing. No, it cannot be a mistake, because you see here 42 is ahead of 25.

A. But 172 is more than 25.

Q. But here is the case of 42 days exposure and there was a change of 0.46 of 1 per cent; now, here, there were 25 days, and there was a change of 0.19 of 1 per cent. So that must be 124 days, as shown upon the table here? A. Yes, sir.

Q. And in 124 days, instead of there being an increase in weight resulting from oxidation, there was a decrease of 0.33 of 1 per cent; that is a fact, is it not?

A. That seems to be indicated in the table. It is the only case in all the list, where there is such a decrease, and it should be interpreted, in view of the possibility of some external condition.

* * * * *

Mr. SULLIVAN.—Q. I will ask you to look at this table and state if the moisture content of the coals that were analyzed [1506—1443] was not largely in excess of the moisture content of the Nanaimo coal?

A. I think I must be permitted to look into the table, and not answer offhand.

Q. Certainly, just look at it. Explain to the jury the moisture content of those exhibits.

A. The moisture content in the case of the Illinois

(Testimony of S. W. Parr.)

coal is 5 per cent; the next coal has a 12 per cent moisture content; the next one 11 per cent moisture content, 4 per cent, 4 per cent, 3 per cent, 3 per cent; West Virginia 1 per cent.

Q. Where the moisture content is very low as shown here, the oxidation was very low, was it not? For instance, I will take here, take the case of the West Virginia coal, West Virginia No. 13, the moisture content was 1.03 per cent; the samples are not put down here—yes, they are, too, 24 days; the moisture content of coal when examined after 24 days was 1.16 per cent? A. It is.

Q. The increase in weight was 0.24 of 1 per cent; after 191 days, the oxidation was 0.15 of 1 per cent, was it not? A. Additional.

Q. And the moisture content was 1.21 per cent, was it not? A. It was.

Q. And after 108 days, the increase in weight was 0.07 of 1 per cent; that is a fact, is it not?

A. The further increase.

Q. And the moisture content in that case was 1.09 of 1 per cent; that is the fact, is it not? A. It is.

Mr. OLNEY.—Mr. Sullivan, it is only fair in that connection that you should read the total increase in weight during that period. You have simply read the increases during certain periods, which are to be added together. [1507—1444]

Mr. SULLIVAN.—The total increase of weight, that is, for the different weights taken at different times—not an average—is 1.37 per cent—no, just wait a while, West Virginia coal 0.46 of 1 per cent.

(Testimony of S. W. Parr.)

A. And the water content of that coal is 1.3 average, is it?

Q. It is a little more than that, I think, Professor; it is about 1.12. Now, where are the other figures which we gave a little while ago? What sample is that?

A. This is the Illinois coal, and this is the same here.

Q. 9a. Now, take the case of your experiment in Illinois, Professor, will you let us look at that book during the recess, please? A. Certainly.

Q. I would like to look at it now. Now, you say there were certain conditions existing when you made the tests for oxidation as shown in table 3 of your own book. What were those conditions, will you explain, Professor?

A. As I recall, the coal was put on the roof, subject to the winds and rain, in boxes, and carried along under those circumstances, which were entirely different from some other conditions which might have been put in operation.

Q. The first experiment of the screenings from Williamson County in an open box, on the roof, the table shows that there were 311.8 pounds in the box. There was one box, was there? A. One box.

Q. How large a box was it?

A. Oh, it was about 18 inches by two feet, probably.

Q. And how deep was the coal in it?

A. I think six or eight inches.

Q. And you say 18 inches by 2 feet—how many pounds in an ordinary sack of coal? About 100

(Testimony of S. W. Parr.)

pounds, [1508—1445] aren't there?

A. It depends on the size of the sack.

Q. Coal is generally sold in 100 pound sacks, is it not?

A. Coal is never sold in our country in sacks.

Q. It is in this country. It is very valuable out here.

A. I don't know what the sack there would refer to.

Q. This shows 311.8 pounds. As well as you can recollect, give us the dimensions of that box; you say it was 6 inches deep; it must have been more than 18 inches by 2 feet.

A. It probably would be greater than that; it would have to be a box that would contain about six cubic feet of space, a box 2 by 3 feet, and about a foot deep.

Q. That is considerable exposure to the coal, is it not? A. Yes.

Q. That was subjected to the rain, the snow and the wind? A. Yes.

Q. And the opportunities for oxidation were manifold, were they not? A. Presumably.

Q. If you would take a box of coal of the same quantity, the Nanaimo coal, the same quantity, and expose it on the roof, the opportunities would be the same, would they not? A. Presumably.

Q. What else did you do with the coal at that time, until you reweighed it; that is, you weighed it once on December 15, 1908, and then reweighed it on the 17th of June, 1909, to ascertain the difference; was any-

(Testimony of S. W. Parr.)

thing done with it in the meantime? [1509—1446]

A. I think not. It might have been sampled, or examined in some way, but I do not recall.

Q. You have no recollection of having touched it at all, have you? A. I think not.

Q. And your impression is that the coal remained in that condition on the rood of the building for that period of time, some six months, and exposed to the elements? A. Yes.

Q. And if you conducted the same sort of experiment with the Nanaimo coal, the coal being of low moisture content, don't you think there would be a loss of weight, as there was in this case of the Illinois coal; in the Illinois coal there was a loss of 1.54 per cent; don't you think with the Nanaimo coal under the same conditions, and being a low moisture coal, there would have been also a loss of weight, and a loss of weight in excess of the loss of weight in this particular case?

A. It would be more reasonable to compare it with the same coal from the same country, carried on in an experiment in this other bulletin, which shows the records in tests under exact measurement as to oxidation. The book which you hold in your hand in another place in the table shows a decrease in calorific value as you pointed it out to me yesterday of one and a fraction per cent, and that must have been counterbalanced by some increase in weight in the sample to represent that decrease in calorific value. The relation between that experiment and the roof experiment, exposed to all of the

(Testimony of S. W. Parr.)

conditions which you have described, and which are put in the book, would bear no relation, and no proper conclusion could be drawn from them.
[1510—1447]

Q. Were not the opportunities for oxidation in this given case appearing on page 3 greater than the opportunities for oxidation of the coal in the bunkers of the Western Fuel Company?

A. I cannot say as to that.

Q. Don't you think that the opportunities for oxidation in this particular case, where there was a loss of 1.54 per cent in weight were greater than the opportunities for oxidation in the yard of the Western Fuel Company, where the coal was piled up and—

A. (Intg.) No offhand answer could be given to that question, because, as I have stated, the conditions involving oxidation are so variable that I am not willing to commit myself to a statement which does not take into account those conditions; it is not fair that I should do so.

Q. You have already said that the screenings oxidize more rapidly than the average coal; that is the fact, is it not?

A. The finer the coal, the more accessibility of oxygen to it.

Q. Now, don't you think in view of the fact that in this particular case the coal was screenings, that the opportunity for oxidation during those six months was greater than the opportunity for oxidation of coal, the average coal, in the yard of the Western Fuel Company during the period of six months,

(Testimony of S. W. Parr.)

where the coal was piled quite high?

A. Also the opportunity for the carrying away of coal by wind currents and other means would be correspondingly greater.

Q. The carrying away of coal by wind currents is not what you term oxidation, is it?

A. Well, say by rainfall and carrying away by a process of leaching and draining out. [1511—1448]

Q. What do you mean by referring to wind currents? Now, we are getting wind currents in this case. What do you mean by wind currents having any effect on oxidation?

A. I didn't say they had any effect on oxidation; I said the possibility of the carrying away of the coal.

Q. Oh, the carrying away of lumps of coal.

A. Certainly. Coal flies in the air under proper conditions very readily.

Q. Does coal fly in the air in San Francisco under any conditions?

A. Down on top of the bunkers, it does.

Q. I suppose in Illinois, it doesn't take wings at all, does it? It is not affected by the wind there.

A. If it is powdered finely enough, small particles are carried away by the wind in Illinois just the same as they would be in San Francisco.

Q. Why was it, in reading from this book a little while ago, Professor, you stopped at the 172 days experiment which showed there was no change in the weight, and did not read on to show there was a decrease in weight upon the 124 day experiment, the

(Testimony of S. W. Parr.)

last figure in the column, showing there was minus 0.33?

A. It may have been because you wanted the book; I do not recall.

Q. You read that while I was sitting down here, didn't you? You read all those figures, excepting that last figure, showing minus 0.33 while I was sitting here, didn't you?

A. Will you bring me the book again—may I have the book again?

Q. Yes.

A. Very well, do you wish me to read that additional item?

Q. It is not necessary to read it now. [1512—1449]

Mr. McCUTCHEN.—I think the witness ought to have the right to read it, Mr. Sullivan; you have cast an imputation against him.

Mr. SULLIVAN.—I have asked him why he didn't read it. I have read it already, and he has read it already. You can read it now if you want to.

A. One hundred and twenty-four days, minus 0.33 per cent. If this is an exceptional case, it may have occurred to me at the time—I do not recall that I had any thought in the matter—that it would not be fair to read it. I see, however, that there is one other case, that of Illinois coal #1639, in which there is a total increase in weight due to oxidation of 1.54 per cent, and in the last 127 days, there was a loss, a decrease in weight of 0.12 per cent. I hope that by reading these two unusual cases, I will remove any reflection

(Testimony of S. W. Parr.)

on my wish to do the proper thing in the matter.

Q. And these were all coals containing greater moisture than the Nanaimo coal, from 4.03 up to 4.53. A. The last two coals that I have read.

Q. Yes. This is what you read, here. A. Yes.

Q. The moisture content of the Nanaimo coal is what, according to your recollection?

A. From 3 to $3\frac{1}{4}$ or $3\frac{1}{2}$, some of them were a trifle under 3 per cent.

Q. One sample, I see is 3.55, one is 2.97, one is 2.54, car in shed; 4.44 open car.

Mr. OLNEY.—Q. 2.54 was a car of dry coal, was it not, which you refer to?

A. Which had been under cover.

Mr. SULLIVAN.—Q. These samples here, taken where the moisture content is shown to be as high as it is, were all dry coal, were they not, or were they the coal taken from the mines? [1513—1450]

A. They were coals with the content of moisture indicated in the table; I cannot say whether they had been artificially dried, or whether they were naturally, without looking at the book.

Q. Look at the book, now, and see if these coals were not artificially dried.

A. Illinois coal No. 1635—well, I think the reply is entirely immaterial, for the reason that there is no coal in Illinois with a moisture content so low as 5 per cent without artificial drying; but Illinois coal No. 9b has given here a moisture content of 12.34 per cent, an average of $12\frac{1}{2}$ per cent, possibly; that coal probably was not artificially dried, but was un-

(Testimony of S. W. Parr.)

der normal conditions.

Q. Which was that, Professor?

A. Illinois coal No. 9b.

Q. What was the moisture content there?

A. $12\frac{1}{4}$ on the average.

Q. But where the percentage comes down to four or five per cent, it was artificially dried?

A. Yes, sir.

Q. And dried in a room where the heat was 105 degrees centigrade?

A. That would be the boiling point.

Q. Yes, I know, but what was the temperature of the room in which the coal was dried?

A. The drying of those coals would be in a room at about 85 degrees Fahrenheit.

Q. Don't you make some tests for the purpose of drying where you seek to dry up all the water out of the coal, and dry it at 105 degrees or 100 degrees centigrade?

A. That is for the drying out of all of the water, but you will notice that the water here was not more than half, at the most, dry. [1514—1451]

Q. Now, one more question on this particular subject and I will drop this subject and go to another: As I understand you, you say where the calorific value, or heat value of coal is reduced, that shows there has been oxidation; is that a fact?

A. There has been oxidation, or some condition corresponding to that.

Q. Where the heat value of coal is reduced by reason of oxidation, does the coal always gain in

(Testimony of S. W. Parr.)

weight by reason of the oxidation?

A. That would be subject to different conditions.

Q. Well, take the ordinary conditions of coal exposed to the elements, as it was in the case of your experiments, would the reduction in the heat value indicate an increase in weight resulting from oxidation? I so understood you to testify yesterday; I may have been mistaken, though. What do you say now, Professor?

A. Well, as a general proposition, those heat values that are given there are reductions in heat value due to some increase in weight of material that is not combustible.

Q. Well, your opinion is, professor, that where the coal is reduced heat value a certain percentage, that ordinarily there is an increase in the weight of coal resulting from oxidation; is that a fact?

A. That would be a general proposition; there may be certain circumstances under which that would not be true.

Q. Take the case of W. A. Powers, the chief chemist of the Santa Fe Railway Company, who made these tests, exposing 100-pound lots of coal to the elements for seven months. In those experiments it appears that [1515—1452] the coal stored in the open air lost in weight from 0.60 of one per cent to 4.78 per cent, and 1.10 per cent to 9.40 per cent of calorific value; now, there is a case where the coal was selected from five states, and in those instances here, the coal not only lost in calorific value, or heat value, but also lost in weight, ranging

(Testimony of S. W. Parr.)

from 0.60 of 1 per cent, to 4.78 per cent. Was that an extraordinary occurrence? Here we find, after this experiment was taken, and which included coal from Illinois—your own state, Missouri, Kansas, Colorado and New Mexico, that not only was there a decrease in the calorific value of the coal, but there was also a decrease, a very marked decrease, in the weight of the coal, a decrease ranging from 0.60 of 1 per cent to 4.78 per cent.

A. I should have to know all of the circumstances that entered into the determination of the heat value of the coal.

Q. You did know at the time you wrote this book, where you refer to Powers' experiment, did you not? You knew the conditions, then, did you not? A. What book are you referring to now?

Q. I am referring to Bulletin No. 38, on the Weathering of Coal, series of 1909, by S. W. Parr and W. F. Wheeler. That is yourself, is it not, S. W. Parr? A. That is myself; yes, sir.

Q. Now, at the time you wrote this book, and referred to this experiment showing a decrease in weight after seven months, did you not know the conditions under which those experiments were made?

A. You say this is work done by W. A. Powers, of which I do not know anything about, and I do not think I [1516—1453] should be asked to testify in regard to it.

Q. But you say he was a pupil of yours, and you referred to his experiments, you must have got the data from him, or from some source, for the purpose

(Testimony of S. W. Parr.)

of inserting the history of the experiments in your books.

A. Well, it is possible that by looking into the circumstances under which that test was made, I might afford an explanation for it.

Q. Does not the explanation appear on the very face of the book, itself, showing that these 100-pound lots were exposed in the open air?

A. I should want to know more about the circumstances. As I have said before, there are many circumstances which might enter in, which would account for the difference.

Q. But you cannot refer now to any peculiar circumstances that would account for the difference?

A. I am not familiar with them.

Q. You were at the time you wrote the book, were you not? A. I presumably was.

Q. Do you know if you could get the data anywhere? A. I do not know; I possibly could.

Q. Don't you write these books, inserting in them sufficient explanatory matter to serve the purpose for which the books are written?

A. That is the effort.

Q. And here, you assume that the conditions—not having explained to the contrary, you assumed that the conditions were normal under which these coals were tested and exposed to the elements?

A. The conditions under which the book was written were to illustrate the decrease in heat value due to coal in storage. There is a popular impression that coals in [1517—1454] storage will re-

(Testimony of S. W. Parr.)

duce in heat value by as much as 50 per cent, sometimes the statements are as high as that. The book was primarily and directly a book to determine how great are the heat losses in coal. If you will examine the charts in the back of it, you will see that it is entirely devoted, that it is primarily devoted *that it is primarily devoted* to an illustration of what are the extremes in the matter of deterioration and loss of heat value of coal in storage under commercial conditions. There is no prime effort in the book to get at the particular matter of weight losses, that is incidental, and should not be taken in connection with the prime purpose of the bulletin. I think the highest decrease in heat value, as shown by the book, is perhaps about $31\frac{1}{2}$ per cent. Now, the effort to correlate with that any exact figure as to changes in weight, any experiments which were carried out on the roofs of houses, and so on, and the circumstances that might enter into the case I do not think is a fair illustration. If the counsel desires experiments that have been carried out with this particular and specific point of view, there are plenty of them just in the same line as those already given by the United States Bureau of Mines.

Q. That is your entire explanation, is it, Professor?

A. It is not. It is a general statement of the conditions.

Q. Do you desire to make any other statement now, concerning the purpose for which this book was written?

A. I do not.

(Testimony of S. W. Parr.)

Q. You say this book was written for the purpose of explaining to the world, the dealers in coal, the buyers, [1518—1455] and sellers, and dealers in coal, the calorific effect upon coal resulting from weathering; is that so? A. Yes, sir.

Q. And not for the purpose of showing any change in weight resulting from weathering; is that a fact?

A. That is the primary purpose of the book.

Q. I refer you to page 11 of this book, and read as follows:

“IV. Storage Conditions Object of the Experiments.—The object of these experiments was to determine the change in weight, the change in calorific value and the amount of disintegration that are liable to occur in the grades of coal found in Illinois and neighboring States under different conditions of storage, (1) in the open air in piles; (2) in covered bins; and (3) under water.”

You state the first purpose to be to determine the change of weight resulting from storage; are you not mistaken in the explanation you gave a few minutes ago?

A. If you recall where you said that these relate to piles in storage in the open air, where it is subject to all kinds of modifications, which would result in the change in weight.

Q. That is all the explanation you want to make now concerning the purpose for which this book was written; is that so?

(Testimony of S. W. Parr.)

A. I think so, I think that is sufficient.

* * * * *

Q. Now, Professor, I understand you made some experiments with the tubs down on the barges of the Western Fuel Company. A. I did.

Q. Did you make any experiment with tubs for the [1519—1456] purpose of ascertaining the difference in weight between a tub that was filled and a tub that was partially filled?

A. It was for the purpose of determining the gravity tipping point of the tub; and for that purpose some of these experiments were made.

The tests were made on January 30th and 31st, 1914, on the barge "Comanche." Tub No. 1 was filled to the top with the regular average coal of the barge. When so filled it weighed net 1390 pounds. I also weighed that tub at the point to which it would tip by gravity, being 1,270 pounds, or 120 pounds less than the net coal when the tub was full. I did not make specific measurements to determine how far from the rim of the tub the top of the coal was when the tub was thus partially filled, but I presume it would be an inch. The tare was 730 pounds, but the weight I have given is net. I made another test with that tub to determine the difference in weight between the tub when full and when partially filled. The same tub Number 1 was filled full, net 1,340 pounds. I removed the coal just to the point where it would tip by gravity and its weight was 1,270 pounds. The difference between the full load and the gravity tipping point was thus 70 pounds.

(Testimony of S. W. Parr.)

Q. Now, did you make any experiment where you filled the tub at the mouth, filled the tub to the rim at the mouth and the coal at the back was a foot or so, the top of the coal at the back was a foot or so from the top; that is, did you fill the tub with coal in a slanting position, the top of the slant being at the mouth of the tub and the bottom of the slant being at the back of the tub, and see whether or not the tub so filled with coal would not tip?

A. I made an experiment of that sort with the coal one foot below the edge, but, of course, not [1520—1457] for a gravity test, but for a tipping test on the rig.

Q. Was it filled to the mouth, was it up to the top of the tub at the mouth?

A. I don't think that the slant of the coal would admit of it being filled to the lip and one foot below at the rear.

Q. You don't think so? A. It might be.

Q. Don't you know it could be done?

Mr. McCUTCHEN.—The witness has just said he did not think it could be done.

Mr. SULLIVAN.—Well, I will ask him again, don't you think it could be done; that is, the coal at the mouth would be even with the rim of the tub and at the back would be about a foot from the top of the tub, just as it is scooped up from a bank of coal in the hold?

A. I think the angle of repose would not be caused in that case.

(Testimony of S. W. Parr.)

Q. Will you explain what you mean by angle of repose?

A. That angle at which the coal will remain in position without rolling down.

(Witness continuing.) There were only two tests as to the point at which the tub would tip by gravity alone, and I have given you those two tests. By gravity alone I mean that when the tub is suspended by the hook it is filled to a point where the tub, without striking the bunker, would turn over and dump itself.

Mr. SULLIVAN.—Q. Will you give me the data upon the other barges, Professor?

A. The barge "Nanaimo," January 31, 1914; the tub was filled full, having a net weight of coal of 966 lbs.; in attempting to get a point at which the tub would tip by gravity alone, it had no such points, no matter how much it was overloaded. Of course, putting the load on evenly over the surface; it was heaped up to 4 inches or 5 inches above the top of the curve until the net weight was 1,036 lbs. At this point the tub reached just a [1521—1458] position where it would overbalance.

Q. That is without striking any obstacle at all?

A. Without striking any obstacle, the gravity test.

Q. What was the tare at that time, the tare of the tub? A. Five hundred and seventy-four lbs.

Q. What other test did you make? What tub was that? Tub No. 1?

A. I think it is. I would like to verify the num-

(Testimony of S. W. Parr.)

ber of the tubs, as I have only recorded the net weights. Tub No. 4. We only worked with one tub on the "Nanaimo."

* * * * *

Q. Can you give me the tubs that you tested on the "Theobold"? We won't go into these dumping tests, but give me the number of the tubs you tested?

A. The "Theobold," tub No. 2.

Q. What was the tare of that tub?

A. Five hundred and ninety lbs.

Redirect Examination by Mr. OLNEY.

There are two sizes of tubs on the various barges but each barge has the same sized tub. The smaller sized tub will be found on the "Nanaimo" and one other barge. When we filled these smaller tubs up to 11½ inches from the rim the tub would not dump when thrown up by the rig the first time, but did trip on the second effort. Then we filled the tub to one foot below the edge and it was impossible to get it to trip at all. When that tub was filled to the top it weighed 830 pounds net, but filled to within a foot of the top it weighed 554 pounds net coal. The tub which we were able to trip on the second trial, being that which was filled [1522—1459] to within 11½ inches of the rim, was 100 pounds short of the full tub. We did not lower the tub to see how much the coal had been displaced by the first bump, but on the second bump it tripped and the bump was the usual one carried on by the regular men in the employ of the company.

As to the larger tubs, we took Number 2 on the

(Testimony of S. W. Parr.)

“Comanche” as a representative. A full bucket of 1,400 pounds net would not dump at 1,150 pounds, but would dump at 1,200 pounds. This shows a difference between the full tub, 1,400 pounds, and the dumping point, 1,200 pounds, of 200 pounds. At this point the tub measured 4 to 5 inches below the edge on all sides, counting the curve and front and rear.

When I testified on cross-examination that I had been employed as an expert in this case at \$25 a day and expenses and upon other conditions, I meant by the other conditions that I was to determine facts and testify as to them without regard to any bearing they might have either for or against the parties interested. That was the only condition under which I would accept employment by the Western Fuel Company. I was told that the parties interested in the case wished to know the exact facts in the matter without regard to their bearing on any questions that might be involved.

I took samples from the three cars at Nanaimo, that is, a separate and distinct sample from each car. Each sample, therefore, contained coal from one car only, and not from all three. I examined the rain records at Nanaimo to ascertain what the rainfall had been for a short time previous to my coming there and I found that the rainfall on August 16, 17 and 18, 1913, was .51 of an inch. On July 11, 1913, the rainfall was .59 of an inch. So far as the weather report indicated, the intermediate days were [1523—1460] dry.

(Testimony of S. W. Parr.)

Q. Is it possible to formulate a rule, a general rule, as to the ratio of increase in weight due to moisture taken on during storage, for instance, as between coals with a natural high moisture content and coals with a natural low moisture content? I do not mean the percentage of difference in the ratio, but simply is there any relation or ratio between the two?

A. There is a general statement, a general law which could be stated.

Q. Will you state it, please?

A. The coals of low moisture content are low in moisture and are at the lower limit, so that anything that could happen to a low moisture content coal under conditions exposed to the weather, would be an increase; now, a high moisture coal is at the upper limit and any additional water that comes on has a greater opportunity for getting away, so that those coals tend to drop down in moisture; the tendency to evaporate high saturated coal is relatively greater than a coal that is already down to the limit. So that a ratio, such as you refer to, it does not seem to me could be established; for example, there are many coals that come out from the mine with 12 to 15% of water; now, 5% additional water would we will say, be from 17 to 20 per cent of water; a coal carrying that amount of water would certainly be much more easily reduced in weight by exposure to the air because it is far above the ordinary saturation point than coal which had originally 3 per cent and had the same amount of water added.

(Testimony of S. W. Parr.)

Q. That is, 5 per cent?

A. 5%, which would be [1524—1461] in that case 8%; a coal that had 8% of water added to it, would not lose moisture so readily as a coal that was high and saturated; in other words, a low moisture coal that starts out under conditions which are at the minimum could not lose any more moisture, it is already dry and is at a near balance with the atmosphere and weather conditions. The same thing could not be true of a coal that starts out with high moisture and has water added to it.

Q. You stated, in answer to a question asked by Mr. Sullivan, that there was no rule as to whether a loss or gain would take place in the weight of coal upon exposure to weather; that is, the coals were so variable in that respect that no rule could be enunciated; confining the subject, however, to coals with the inherent low moisture content is the same true, is it or is it not in that case possible to say whether or not the coal on exposure to air would lose in weight or increase in weight, and which way it would go?

A. Well, I think that question was partly covered in the previous answer, to the effect that starting out with a coal which is at the minimum all the changes in such a coal would be gains, so far as moisture would be concerned.

Q. Would you expect to find that gain upon the exposure of such coal in storage to normal weather conditions?

A. The same answer would apply to that question,

(Testimony of S. W. Parr.)

namely, that since it starts out with the minimum amount of moisture, the gain while similar would still be a gain.

Mr. OLNEY.—Q. You spoke, in answer to a question by Mr. Sullivan, of a tolerance being given on account of moisture, certain coals in the East having a tolerance allowed on account of moisture; what do you mean by that? You said a [1525—1462] tolerance of from 1 to 15%?

A. I mean by that that under certain conditions, such as coal delivered from a washery, the finer sizes may carry so much water, and being of such low commercial value it has come to be an established practice to allow these tolerances; for example, coal No. 5, in the Southern Illinois field and in some other places is what we may call a buckwheat size and has all the fine material in it; now, while it is a very pure quality of coal, it is, as I have said, of low commercial value, and while it has inherently 14 or 15 per cent of water it comes from the washery with an addition to that of what is recognized as approximately 15 per cent of water; that is to say, from 28 to 30 per cent, of this material is water. Now, a tolerance is allowed in the weight of such coal of 15 per cent. A mixture of the next size, largely—

Q. (Intg.) Permit me to interrupt you: Allowed by whom, and what?

A. It is allowed by the railway weights to the shippers.

Q. That is, from 1 to 15 per cent is deducted from

(Testimony of S. W. Parr.)

the weight of the coal to allow for the water that is in it?

A. Not exactly that; No. 1 coal has a little tolerance, of one per cent; No. 2, 2 per cent; No. 3, 3 per cent; No. 4, 4 per cent; No. 5, 15 per cent.

Q. Take the case of the 15 per cent, the tolerance which is allowed, is a deduction on the weight of the No. 5 coal of 15%

A. In order to get the weight of the coal without the water.

Q. Without the water, as a commercial proposition? A. That is the case. [1526—1463]

Q. And the freight rate is based on that weight?

A. It is.

Q. Now, in answer to a question of Mr. Sullivan you stated that the matter of computing the probable percentage to which the coal would increase in weight, or by which the coal would increase in weight, even with the coal moving from time to time, that is, the coal being purchased and put in storage and other coal being taken out and sold, was a matter of comparatively simple computation. Will you just explain how that is?

A. If we have a given area of coal upon which water is being discharged, we will say, for simplicity of the illustration, from a pipe delivering a given amount in a given time, the discharge of that pipe over an hour will be a given amount. Suppose it increases the weight of that mass of coal, for convenience in figuring, of 10%; now, supposing instead of an hour's time two such areas of coal are placed

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under the water, one for half an hour and the other for half an hour, we have an increase in weight of the two masses of coal of 5% ; and so on the illustration would apply. Now, suppose there is a continuous movement of coal we will say on a belt, with a given area and a given fixed discharge of water, if the belt moves forward and the coal proceeds with a fairly uniform rate, the amount of water which will be discharged upon the coal will be a comparatively fixed ratio as between the mass of coal that has passed in a given time and the water that has flowed from the supply. That it seems to me would illustrate [1527—1464] the essential factors that are involved in making such a calculation.

Q. Now, take and apply those factors to this particular case, where, as the question was put to you, there were some 2,000,000 tons of coal imported and sold during the 6 or 7 years involved—and the average amount of coal carried on hand was about 25,000 tons not under cover and 7,000 tons that were under cover; now, will you explain how with those figures and the coal constantly moving—that is, 2,000,000 tons having moved in 6 or 7 years, you are enabled to get a reasonable percentage or get at a percentage of increase within reasonable limits?

A. Well, we have here the factor of area again exposed to a constant fall of water month by month; at least we start out with factors of that sort; now, we say that there are 25,000 tons of coal in process of movement because at the beginning or at the end of a given period of time or at any period during

(Testimony of S. W. Parr.)

the year that amount of coal has passed by; if we take as a unit of area to start out with of a bunker for example which measures very approximately 20 by 40 feet—as a unit for illustration; now, the area of a bunker of that sort is 800 square feet; the rainfall upon such a bunker for the year's period is very nearly a ton to the inch, or for convenience of illustration—2 tons to the inch, or 50 inches of water.

Mr. SULLIVAN.—Q. Two tons to the inch?

A. Eight hundred square feet of surface in the course of the year will deliver that amount of water; now, we have [1528—1465] the factors of the amount of coal passing in review, and the water which falls upon it, which enter into the calculation.

Mr. OLNEY.—Q. Just go on with that illustration, Professor Parr; suppose you go ahead with the illustration of the bunker, for instance. I would like to interrupt you for a moment though: what do you mean by 2 tons of water to the inch? Upon what basis is that?

* * * * *

The COURT.—Eight hundred square feet covered with an inch of water.

* * * * *

A. If you wish the calculation on which that is arrived at, an area of 20 by 40 feet gives 800 square feet; now, 800 square feet, one foot in depth of water—

The COURT.—Q. You mean one inch?

A. No, I am figuring now for convenience to get it into cubic feet; 800 square feet, if it were a foot

(Testimony of S. W. Parr.)

deep, 12 inches deep—

Mr. OLNEY.—Q. That is, if the rainfall were just a foot, 12 inches?

A. Yes, if there was 12 inches of rainfall and it stayed so that it were 12 inches deep, you would have 50,000 cubic feet of water—I should say 50,000 lbs. of water, because each cubic foot weighs $62\frac{1}{2}$ lbs. Now, the 50,000 lbs. of water represent 25 tons. If the rainfall were 24 inches, that weight of rainfall upon a bunker surface 20 by 40 feet would amount to 2 times 25 tons or 50 tons; so that the weight of water which falls upon a bunker area of 20 by 40 feet, when the rainfall amounts to 24 inches is 50 tons. [1529—1466]

Q. Now, just confining your illustration to that bunker of that particular area, just tell the jury how the computation would be made by which you determine the increase in the weight of the coal, or the percentage of increase in the weight of the coal passing through the bunker in the course of the year.

A. You have made the statement that the sum total of coal exposed at any one time—that is, assuming that 33,000 tons of coal are in storage, 32,000 tons of coal are in storage, and that 6,000 should be deducted for various reasons, the reason being that they are not exposed to the atmospheric condition, 25,000 tons of coal would weigh, assuming that there are 40 square feet to the ton, 1,000,000 lbs.; now, 1,000,000 lbs. of coal, if it were exposed one foot in depth, would have an area of 1,000,000 square feet; but we will assume a depth for the coal which would

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be a reasonable average of the coal as it is piled; for example, it would be quite unusual for a storage pile to exceed 25 or 30 feet in height, the depth, however, if such coal were piled evenly, would be, according to the mathematical rule, one third of that height, or about 7 or 8 feet in height; now, then, we have therefore 1,000,000 square feet of area if our coal were only piled one foot in depth, one-seventh or one-eighth as great as if it were only piled one foot in depth; this then would reduce the area upon which the water could fall to about 100,000 square feet, that is, if it were 10 feet in depth, or we will say to about 120,000 square feet if it were a less depth; now, then, we have already seen that an area 800 square feet delivers a weight of 50 tons; how many such areas are involved in this area that we are talking about, that is, 100,000 square feet; [1530—1467] there are 125 such areas, each one taking 50 tons of water, which would give us in one year 6,250 tons of water falling upon that area. Now, if it were seven years in duration, the amount of water falling upon that area would be 43,750 tons. Now, we should assume that there must be some allowance made for evaporation possibly—certainly,—and other causes, so that it would be fair to drop down a reasonable amount for such losses, let us say one-fourth even, or a fifth it seems to me would be very conservative.

Mr. SULLIVAN.—Q. Deduction?

A. Deduction. Now, if you deduct a fifth of 43,750 tons for such losses you have a reduction amounting to 8,000 tons, and subtracting that from

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the 43,750, it would give us we will say 35,800 tons of water in seven years. Now, if we divide this by the 2,000,000 tons in storage, to get at the percentage, we will have very nearly 1.8 per cent. Now, that is based on a 10-foot depth. If the pile were 7 feet in depth the percentage would be ten-sevenths of that amount, which would be 2 and a fraction, $2\frac{1}{2}$ per cent as the average amount of rainfall that would be discharged on a moving quantity of coal having at any one time an area such as has been given and having a rainfall of the estimated amount.

Q. That is, 25 inches of rainfall?

A. 25 inches of rainfall; but I have estimated, or I would say that the allowance of one-fifth thrown out would perhaps make up for a small difference in the amount of rainfall, which is somewhat over the actual rainfall average.

Mr. OLNEY.—Q. What is the actual rainfall average that you found?

A. I think it is $22\frac{1}{2}$ inches.

Mr. SULLIVAN.—Q. You made an allowance for 25 inches? [1531—1468]

A. My calculation was based on 25 inches.

Q. That is the Illinois rate of rainfall, is it not?

A. 40 inches in Illinois; 35 to 40, it varies.

Mr. OLNEY.—Q. Now, I want to get the essential elements of the process that you followed, without regard to the particular figures, clear in the minds of the jury, Professor Parr: you have taken a bunker, for instance, 40 by 80, and by reference to weather tables you can get the amount of rain which fell on

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that area in the course of a year, can you not?

A. I can.

Q. And you get that in inches? A. In inches.

Q. And you can immediately transform that into weight, because you know the weight of water per cubic foot, per unit of cubic measure? A. Yes.

Q. And then you will know the weight of the water that fell on that particular bunker having a particular area during the course of a year, or if more than once a year is involved, during the course of several years; is that correct? A. True.

Q. Then if you take the amount of coal which has passed through that bunker in that time and say that all of this coal, for instance, was in one bunker, a big bunker containing 2,000,000 tons—of course that is a physical impossibility, but assuming it theoretically—then you would have a weight of coal of 2,000,000 tons passing through the bunker and having been exposed to a rainfall during that time computed in the manner indicated and taking the weight of the water and the weight of the coal as it passed through, you would get a percentage which would be theoretically the absolute gross amount to which the coal would have been increased [1532—1469] or could have been increased by reason of the rainfall: is that correct? A. That is true.

Q. And then you make a deduction from that because that of course is the theoretical perfect percentage, a reasonable deduction, in your opinion, to get the actual percentage? A. Yes, sir.

Q. Is that the process that you followed in the es-

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entials? A. That is the process.

Q. Would there be any difference between the deduction to be made for loss of water; that is, for the coal losing water, water draining off, in such a case as that where the coal is passing along and the deduction which you would have to make for loss of water, water draining off, where the coal did not pass along, and you were dealing simply with one pile or one bunker full of coal, the coal in which did not change during the year, for instance?

A. The fact that the coal is passing through the bunker would not be any reason why it should not take the full amount of water that falls upon it and retains it. If the pile stood in storage long enough to receive a saturation beyond its limit such a pile would lose the excess water doubtless by drainage.

Q. Now, let us take a practical illustration of that: suppose you had a pile of coal that was spread out so that it was only one foot in depth, that is, it was very shallow, and covered a large area, and it was exposed in this climate for six months, for instance, and six months during the winter, and there came, as we frequently have here, a rainfall of perhaps 5 inches in a couple of weeks, and that coal was not changed in that time, it remained the same coal, spread out to a depth only of one foot, would or would not that coal be [1533—1470] brought up to a point of saturation? A. It would.

Q. And the water would run off? A. It would.

Q. Now, suppose instead of the coal remaining there, the coal is passing along during this period, so

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that this lot of coal gets a part of the 5 inches, and this lot of coal gets another part, and this lot of coal gets another part, as it is passing along (illustrating), what would be the case there?

A. There would be no loss by drainage providing the coal moved sufficiently rapid to prevent an accumulation of moisture beyond the saturation point.

Q. In other words, putting it in other words, the result is that in the movement of the coal the coal is not so apt by reason of any one rain or any one wetting to be wet to such a point as to be saturated and to lose a considerable amount by drainage, while on the other hand if the coal remained still that is apt to take place and a considerable amount be lost?

A. The retention is in favor of the moving mass of coal.

Q. You were examined by Mr. Sullivan as to moisture content of screenings and lump at the mine; I don't remember now exactly what the question was, but will you state to the jury whether or not there is any difference in the moisture content of screenings and of lump coal as they come from the mine?

A. The coal in the vein has the water distributed evenly throughout the vein. When coal is broken out and some of it is ground up in the process and becomes fine material [1534—1471] it has still the same content of moisture that the entire mass had when it was broken out.

The COURT.—Q. There is no fine material as such in the mine?

A. There is not. It is all solid material. The

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blasting of the coal tends to shatter a large amount, a comparatively large amount; the shoveling out and all those processes tend to produce a very considerable amount of fine material, but this process and the resulting products of fine and coarse at the time do not differ in the water content.

Mr. OLNEY.—Q. That is, if you take a case of one blast in the mine, a blast is put in and it breaks out the coal; now, some of that is lump coal and some of it is fine coal in the very process of breaking it out? A. It is.

Q. In the very nature of things? A. It is.

Q. And both the fine and the lump coal have the same moisture content? A. They do.

Q. Then the difference in moisture content between screenings and lump coal is a difference that is due to other conditions or to an accession or decrease in moisture after the coal leaves the mine?

A. It is.

Q. On that point which is the most subject or which is the most apt to take moisture and retain it?

A. The fine coal.

Q. And it is there that the difference lies between lump and screenings or fine coal as to a difference in moisture content? A. It is.

Q. Now, this may have been sufficiently covered, but I am going to ask the question anyhow so as to be sure of it: will you explain to the jury again what the significance [1535—1472] is of the differences in the percentages of moisture in the same coals as delivered at different times, in the tables that were

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shown to you in Bulletin 41 of the United States Bureau of Mines?

* * * * *

A. The Bulletin to which you refer gave extremes of moisture content and the extreme figures were read by me; the question did not ask as to the water content of the coal as it comes from the mine, because a Bulletin just prepared by the United States Bureau of Mines, with upwards of 5,000 determinations, shows the inherent water content of the coal, and that was not the point as I understood the question which was sought to be brought out. The question was what under the ordinary commercial conditions are the excessive increases in weight of coal; now, there is a difference, as I understand it, between an excessive increase and an unusual increase; if there had been only one case of this sort, it would not have been fair to read it, but there were the common occurrences in the Bulletin. I think 10 or a dozen or possibly 15 cases were read; that is to say, under ordinary common commercial conditions what are the most unusual excesses in weight that may be met with due to the addition of moisture?

Mr. OLNEY.—Q. Now, Professor, getting at it in a little different way, at what point in the course of the handling of the coal were these samples taken, the results of which appear in those tables?

A. All of the Government data is taken on the coal at delivery at the point of consumption. [1536—1473]

Q. Then these tables were of samples taken upon

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delivery of the coal to the Government at the point of consumption? A. They did.

Q. And these tables showed the variations in weight of the same coal as delivered to the consumer—namely, the Government, at different times?

A. They did.

Q. Now, the moisture content of this same coal at the mine is fairly constant, is it not? A. It is.

Q. Then the significance of these variations is that it shows the range within which the same coal may vary in weight due to variations in the moisture content? A. That is the case.

Q. After it is removed from the mine, and in the process of handling and sale? A. That is true.

* * * * *

Q. What did you do to test the samples which you had to see whether or not the coal was susceptible to oxidation?

A. That work was outlined in Professor Folsom's Laboratory and it consisted in putting the coals under test which would show the amount of oxidation they would undergo at given periods of time.

Q. What relation is there between the susceptibility of coal to oxidation and the amount of sulphur that is in it?

* * * * *

A. Do you refer to water that is in coal, inherent in the coal?

Q. No, I am asking now about oxidation, and asking you if there is any relation, and if so what that relation is, between the susceptibility of the coal to

(Testimony of S. W. Parr.)

oxidation and [1537—1474] the amount of sulphur that is in it?

A. The more sulphur the more—if I understand your question right—

Q. (Intg.) Does all contain some sulphur?

A. It does.

Q. Now, this is the point I am coming to, is there any relation between the susceptibility of coal to oxidation and the fineness of the particles of sulphur which are found in the coal? A. There is.

Q. What is that relation?

A. The more fines in which there is sulphur the more susceptible it is to oxidation.

Q. I don't refer to coal fines, but I refer to the fineness of the particles of sulphur themselves?

A. The finer they are the more easily they are oxidized and the more rapidly they are oxidized.

Q. You were cross-examined this morning, Professor Parr, with relation to certain tables which appear in Bulletin 28 of the Bureau of Mines; since the recess have you read that portion of the Bulletin which is concerned with those tables? A. I have.

Q. Take for instance the table on page 20: you were examined by Mr. Sullivan in regard to percentages shown under change in weight; that is, shown in the column under the heading "Change in weight," and you testified this morning as if those were changes in weight due to the process of oxidation; what is the fact in that connection?

A. I find that the water in the coal is less in amount and that is to be taken in in conjunction with the

(Testimony of S. W. Parr.)

change in weight in these particular cases.

Q. For instance, you were asked about this Illinois coal No. 9a? A. Yes. [1538—1475]

Q. The table shows an increase in weight of 0.17 of one % in four days; 0.47 of one per cent in 20 days, and a total increase in weight of 0.96 of one per cent in 387 days; now, is that the increase in weight which is due to the process of oxidation or is it the net increase in the weight of the coal?

A. It is the net increase and does not relate to oxidation.

Q. Immediately by the side of this last column to which I have referred there is another column headed "Moisture determination," that column shows a loss, does it not, of moisture determination during this time of 0.72 of one per cent? A. It does.

Q. And in order to get the total increase in weight due to the effect of the oxidation is it or is it not necessary to add the 0.96 of one per cent of increase in net weight and the 0.72 of one per cent of loss of moisture? A. That would be true.

Q. Does the author of the Bulletin do that very thing in the table on page 22?

A. That is the purpose of the table on page 22.

Q. And does it show there under the head "increase in weight due to oxidation" the 1.68% as the increase in weight in this very case?

A. That is the case.

Q. And is that true of the other coals that are examined *them*? A. It is, all of the other coals.

Q. That is, the table on page 22 is a table showing

(Testimony of S. W. Parr.)

the increase in weight due to oxidation; it is so headed, is it not?

A. Increase in weight due to oxidation.

Q. As compiled from the tables shown on pages 20 and [1539—1476] 21? A. That is true.

Q. Now, coming to this one particular thing that you were asked about in this Illinois No. 9a, in a period of 124 days, right at the end of the table there *there* appears a loss of minus 0.33 of one per cent. Now, I will ask you—

A. Excuse me, but what table do you refer to?

Q. The table on page 20, the first sample, and at the end of the column it shows a loss, that is, minus 0.33 of one per cent in change of weight in the last 124 days. Now, does that mean that through the process of oxidation the coal was losing weight during that time?

A. It does not. There was a constant increase at each period. This minus quantity here is due to the fact that there was a slight loss of water from the sample at the time, but there was an increase due to oxidation.

Q. As the process of oxidation goes on does there come a time when as the result of that process the coal loses weight, provided, of course, that the coal does not heat to such an extent as to practically burn.

A. There is no decrease in the process of oxidation—

Q. That is, no decrease in weight.

A. In weight; there may be an increase or a decrease in weight due to other causes but the process

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of oxidation is a plus process always, within the limits of the high temperature, not too high a temperature to drive off the volatile constituents.

Mr. OLNEY.—Now, if the Court please, I am going to ask leave to read from the Bulletin upon this subject because there are some portions of it which throw light upon [1540—1477] this very matter. I think it is fair to go before the jury right now.

* * * * *

Mr. OLNEY.—This portion of the Bulletin I desire to read to you, gentlemen, is as follows:

“Alteration of Weight of Samples of Coal When Kept in a Finely Powdered State.

“In order to investigate the question of the extent of alteration of the samples when kept in a finely powdered condition as prepared for analysis, portions of a number of such samples were put in weighed bottles, which were securely closed with rubber stoppers. These bottles were kept in the laboratory and weighed from time to time. Moisture determinations were made on portions of the sample at the times of the weighings, allowance being made for the portions removed for this purpose. The following gives the percentage of moisture originally present in the sample, the percentage of gain or loss in weight at the several weighings, and the time interval between the weighings; also the total time covered by the experiment.”

Then following a set of tables which are the first tables appearing and which have these percentages of 0.17 and 0.47 and minus .33.

(Testimony of S. W. Parr.)

Mr. ROCHE.—You will concede Mr. Olney, that the weights there show the weights of samples of coal in that first table taken at different times.

Mr. OLNEY.—They show the changes in weight, not the weight.

Mr. ROCHE.—They show the changes in weight of the samples taken. [1541—1478]

Mr. OLNEY.—Yes, that is what it says, and that is what it shows, changes in weight.

“Without exception these samples all increased in weight upon standing. At the same time the moisture values usually decreased. The gain in weight is to be ascribed to oxidation, and the decrease in moisture either to actual loss or to fixation of a portion of the moisture present by the oxidation changes. If the moisture loss be considered an as actual escape of moisture from the sample, the total gain due to oxidation is equal to the observed gain plus an amount equal to this moisture loss. The table below gives the total oxidation changes considered on this basis, together with the original and final calorimeter determinations on some of the samples, also the loss in calorific value in excess of that due merely to changes in weight of the sample. For purposes of comparison the amounts of moisture, ash, and sulphur present in the sample are also given.”

Then follows a table giving the laboratory number of the sample, the field number and the increase in weight due to oxidation, and running 1.68%, 1.78%, 2.47%, and finally a Wyoming coal 2.56% as the maximum, while the minimum increase in weight

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is 0.40 of one per cent.

Then the Bulletin goes on:

“The oxidation changes in every case are sufficiently large to be of practical importance—the smallest change—that in the Ohio No. 5 sample—being 0.53 per cent,”—I don’t understand why it says that because it appears here that the West Virginia is 0.41 per cent.

* * * * *

Mr. OLNEY.—(Reading:) “The oxidation changes in every [1542—1479] case are sufficiently large to be of practical importance, the smallest change—that in the Ohio No. 5 sample—being 0.53 per cent, while the Illinois No. 9B sample showed a change of 2.47 per cent. The Wyoming No. 3 sample showed an increase of 2.56 per cent in weight and a decrease of 205 calories in heating value. The changes in weight correspond to a decrease in heating value of 144 calories, the final calorific value obtained being 75 calories lower than is accounted for by the changes in weight. Further results along these lines are desirable, but the values already obtained show very clearly that old samples of coal can not be regarded as representative of the original coal in composition or in calorific value.”

Q. I will ask you to read to the jury the sentence prior to this Table 3, on page 18, about which you have been examined, and introducing that table from your report, just that sentence, there.

A. “Further data along this line are necessary,

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especially with large samples under actual storage conditions before any conclusions as to either an increase or decrease in weight would be warranted," referring to oven-dry samples, and not to moisture changes.

Q. Now, I will ask you to refer to the next table, which immediately follows Table 4, and ask if there does not appear a table of weights obtained by experiments conducted in the same manner, or in much the same manner, and showing increases in weight.

A. There is such a table and the basis of the reference is the same as before. All of these increases are gains in weight, or all of these figures are gains in weight. [1543—1480]

Q. And you were shown, on the one hand, tables showing decreases in weight, and on the other hand, tables showing increases in weight, where the experiments were practically the same.

A. The conditions of the experiments were not the same; I do not recall the second condition, but they were based on the same condition as to the matter of oven-dried or dry coal.

Q. You were simply presenting here, were you not, the various data you had gathered from time to time upon the subject? A. Yes, upon the subject.

Q. And some data might point one way and some another.

A. Yes, sir, and it was for that reason that the statement was made that further experiments in that connection should be carried on.

Q. As a matter of fact, has the knowledge of the

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profession upon this subject of oxidation materially increased since this article was written?

A. It certainly has.

Q. And what has been the result of that increase of knowledge?

A. It shows that there is a uniform increase in weight, due to oxidation.

Q. Now, I will refer you to this portion of the article, a part of which was read to you:

“An editorial in *Power* gives Heidepin credit for showing that spontaneous ignition and weathering are due to direct oxidation of the coal substance and to the oxidation of pyrites, as Leibig supposed.”

Pyrites is a combination of sulphur, is it not?

A. Yes.

Q. (Continuing.) “Bunte also credits the [1544—1481] phenomena to a direct oxidation and absorption of oxygen by the coal. The smaller sizes and the most porous coal are said to be affected the most. The absorption of oxygen may result in a gain in weight of as much as four per cent. W. A. Powers, chief chemist of the Santa Fe Railroad, in 1907, carried out an investigation of the weathering losses of the coals used on that road. These coals covered a wide range of county, samples being tested from Illinois, Missouri, Kansas, Colorado and New Mexico. One hundred-pound lots of coal were stored in the open air and under water for a period of seven months. The coal stored under water is said to have lost from .26 per cent to 5.92 per cent in weight, and from .56 per cent to 8.75 per cent in calorific value.

(Testimony of S. W. Parr.)

The coal stored in the open air lost in weight .60 per cent to 4.78 per cent and 1.10 per cent to 9.40 per cent in calorific value." Now, I will ask you if the changes in weight that are there referred to are changes in weight after the moisture factor has been eliminated, or with the moisture factor present?

A. They are based upon the water factor eliminated, and do not in any sense refer to the mass of coal as it was in storage. The same conditions prevail there as in the other case. Some of the coal was stored under water, as I recall it.

Q. It was stored under water, the bulletin says so. Now, this was read to you as a part of your conclusions in connection with this matter:

"Coal of the type found in Illinois and neighboring states is not affected seriously during storage when only the changes in weight and heat power are considered; the [1545—1482] changes in heat may be either gains or losses, and are probably never over 2 per cent in a period of one year. The heating power decreases most rapidly the first week after mining, and continues to decrease more slowly for an indefinite time."

I will ask you there, in that connection, if the changes in weight which are referred to are the changes in weight with the moisture factor eliminated, or with it present.

A. With the factor eliminated, on the oven-dry condition. That is the uniform condition where a variable is present.

Q. Were you, or were you not, dealing with coal

(Testimony of S. W. Parr.)

that was stored under water? A. I was.

Q. So that it would be a saturated coal?

A. It would be; that sample was saturated.

Q. And were you, or were you not, putting on the same basis of comparison, coal which was stored in the open air, coal which was stored under cover, and coal which had been stored under water, so as to be saturated? A. Those were the conditions.

Q. And you were putting them all on the same condition.

A. On the oven-dry condition, without any water in them.

Q. You have testified that the process of oxidation goes on in two ways, one by action with the sulphur content, and the other by action with the carbonaceous content. A. I did.

Q. Which of those processes is the most active, or which will result in the greater increase in weight?
[1546—1483]

A. The latter phase of the question is altogether different from the other. Oxidation of the carbonaceous matter may be more active and produce less increase in weight. The oxidation of sulphur increases the weight by from 5 to 6 times the amount of the matter of chemical activity, and the result in weight will not have any relation to each other at all, but the ultimate increase is far greater in the oxidation of sulphur than it is in the oxidation of carbonaceous matter.

Q. We are dealing here with changes in weight purely and simply. If I get your answer correctly,

(Testimony of S. W. Parr.)

it is that of these two processes of oxidation which go on in the coal, the oxidation of the sulphur is the one which chiefly is responsible for the changes in weight, due to oxidation. A. It is.

Q. Now, by the oxidation of the carbonaceous material, you mean what we may call the ordinary coal constituents? A. Yes.

Q. The heat constituents of the coal. A. Yes.

* * * * * * * * *

Q. Now, Professor Parr, you were examined this morning upon the tables shown on page 18 of Bulletin 38 of the University of Illinois, entitled the "Weathering Coal" of which you are an author together with W. F. Wheeler. This table is headed "Change in weight of coal exposed to the air," and it appears that it was of screenings, and in the case of screenings from Williamson County, Illinois, they were exposed in an open box on the roof, in one case, and in a barrel in a building in another case, that it was weighed December 15, 1908, and reweighed June 17, 1909, and that it had lost during that period 4.8 lbs., or 1.54 per cent [1547—1484] in one case, and two-tenths of a lb. or 0.07 of one per cent in another case. Now, I will ask you if these changes in weight which are given here in the table are changes in weight of that coal as it was put on the building, at the time it was put on top of the building, or put in the barrel in the building, and at the time it was taken out? A. Not at all.

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Mr. OLNEY.—Q. Will you call attention to these

(Testimony of S. W. Parr.)

weights and just state what these weights are?

A. These are weights which refer to coal in the dried state, after they had been heated in an oven at a steam temperature for one hour, and are weights of coal dried at 105 degrees.

Q. Is that fact shown on the face of that table, that that coal was heated, in both cases, to 105 degrees centigrade? A. It is.

Q. Would then any changes in weight due to a change in moisture content appear in that table?

A. Not at all; that was not the basis upon which this comparison was made.

Q. Why was that coal heated to 105 degrees centigrade before each of those weighings?

A. Because the coal was put under different conditions, as for example, one sample was submerged in a barrel of water and we could make no comparison as to change in weight of the mass, which was not the object of the table, hence they had to be brought to this condition which is described.

Q. Was not the heating of the coal to this high [1548—1485] temperature, just above boiling point, done for the very purpose of eliminating any factor of moisture content in connection with the experiments which were being made?

A. That was the purpose.

Q. Now, you were referred to this portion of this Bulletin which I am going to read to you:

“Storage Conditions.

“Object of the Experiments.—The object of these experiments was to determine the change in weight,

(Testimony of S. W. Parr.)

the change in calorific value and the amount of disintegration that are liable to occur in the grades of coal found in Illinois and neighboring states under different conditions of storage, (1) in the open air in piles; (2) in covered bins; and (3) under water."

To what changes in weight were references there made, or rather, to changes in weight under what conditions was reference there made when you spoke of changes of weight?

A. Not to the gross weight but to changes in weight which would be present without regard to any moisture content, but based upon the oven-dried sample.

Q. And why is that necessarily so?

A. We could not make any comparison between the samples as you have read them there, one being submerged in water and others being out in the open air. It was for the purposes of comparison.

Recross-examination by Mr. SULLIVAN.

In the tests which are illustrated on [1549—1486] page 18, table 3, of my Bulletin "Weathering of Coal," the coal was heated to 221 degrees Fahrenheit, that is, 5 degrees above the boiling point. The purpose of drying the coal out at that degree is to drive out the moisture. The sample of the screenings on the roof which was dried out at 105 degrees centigrade and all the moisture was taken out of it by the intense heat. The sample was weighed originally December 15, 1908, and then weighed again June 17, 1909.

Q. Now, then, at that time there was no moisture

(Testimony of S. W. Parr.)

in that sample, was there? A. There was not.

Q. And six months had elapsed between those two weighings, that is, from December 15, 1908, to June 17, 1909? A. Yes.

Q. The difference in pounds, according to your table, here, was 4.8 pounds, was it not? A. Yes.

Q. And the change in weight is represented by minus 1.54 per cent?

A. In the condition of absolute dry coal, without moisture.

Q. Now, that shows that by reason of oxidation, alone, regardless of moisture—because there was no moisture—there was a decrease in weight equivalent to 1.54 per cent; is that not so?

A. When referred to the moisture free condition. It has no reference whatever to the condition of the gross sample on June 17, 1909, nor to the condition of the gross sample on December 15, 1908.

Q. Does not that show the decrease resulting from oxidation, alone? A. It does not.

Q. What does it refer to?

A. It refers to the ultimate condition of the test, with all of the [1550—1487] plus and minus factors entering into it.

Q. Speak so the jury can understand you, please, and answer that question again. What does the 1.54 per cent refer to, what does it mean?

A. It means that the coal in the oven-dry condition, if all the mass of coal could have been oven-dried, weighed less than the same condition 6 months previous, if the coal was brought to the same condition.

(Testimony of S. W. Parr.)

Q. What brought about that change?

A. If we were to go into all the details of the experiment, as to what might make a difference there, you will recall that this test was carried out in a wooden box, and the product—the resulting effects of the experiment would carry into the wood a constituent which would not belong to the wood, but which normally would belong to the coal. Now, there are a number of conditions of that sort.

Q. Oh, do you mean that some of this increase of weight occurred by reason of the condition of the particles of wood in the wooden box?

A. No, I didn't say that.

Q. Now, please give another explanation, if you can; I would like to understand the explanation.

A. The condition here is that of the coal dried out at 105 degrees, and has no relation to the gross sample of coal at the end of the experiment.

Q. What does this 1.54 mean? Will you explain it please—minus 1.54?

A. It means that there was a seeming decrease in the mass of coal.

Q. A seeming decrease in the mass of coal which was free from moisture?

A. Which was free from moisture. [1551—1488]

Q. Which was free from moisture when it was first weighed, and which was free from moisture when it was last weighed? A. That is true.

Q. Now, during that period of 6 months, did the coal oxidize? A. It did.

Q. Notwithstanding the oxidation, there is a seem-

(Testimony of S. W. Parr.)

ing decrease in the weight of the coal, equivalent to 1.54 per cent. A. There is.

Q. After all the moisture had been deducted .

A. There is.

The COURT.—He is simply asked to explain what that percentage represents. Whether it is set down in the book, or is not set down in the book, he can tell what it means, if he knows.

A. It represents the loss of weight, under the conditions of that experiment.

The quantity of coal in that experiment was 311 pounds which would require a capacity of approximately 2 by 3 by 1 foot in depth; this was not a usual test; it was the only test that I know of that sort.

Mr. SULLIVAN.—Q. Assuming that 25 inches of rainfall on a box of coal 2 by 3 by 1, what would be the total weight of that box of coal and the water at the end of a year?

A. You mean the weight of the water that would fall on that area.

Q. Yes, in a box 2 by 3 by 1 foot.

A. It doesn't make any difference how deep it is, the area will catch the water.

Q. Well, say 2 by 3, and assume 25 inches of water fell on it.

A. 780 pounds would be the total amount of precipitation on that amount of area when there was a rainfall of 25 inches. [1552—1489]

Q. How many pounds, do you say?

A. 780 pounds.

(Testimony of S. W. Parr.)

Q. Now, let us deduct $\frac{1}{5}$ of that weight for drainage and evaporation.

A. Then you must assume that the box is a sieve, and that—

Q. (Intg.) Just make the calculation, please.

A. The total amount of rainfall on that area, being 24 inches, would give a weight of 624 pounds.

Q. And plus the 300 would be 1000 pounds that the contents would weigh, allowing $\frac{1}{5}$ for evaporation and drainage.

A. Excuse me, I don't think that is a fair statement.

The COURT.—Q. That is assuming it retained all the water in the box.

A. Assuming that the box could hold all the water.

Mr. SULLIVAN.—Q. Assuming by some act of Providence the water would remain right above that square box, assuming that a miracle took place, Professor, that there was a solid wall of water above this box 2 by 3 by 1.

A. Frozen into a mass of ice, for instance.

Q. Now, assume that in the last 50 years we had a rainfall of 25 inches of water per year here in San Francisco, how much would San Francisco be submerged after deducting $\frac{1}{5}$ for evaporation and for drainage? Wouldn't we be submerged under a great mountain of water 84 feet high?

A. If you had no sewer system here, and allowing that there were no drainage systems at all.

Q. And allowing for evaporation and drainage, wouldn't we be submerged under about 84 feet of water?

(Testimony of S. W. Parr.)

A. I would have to figure it out. [1553—1490]

Q. I figured it out. Take it 25 by 50, that would be 1250, and dividing that by 12 it would leave 104, and then deducting $\frac{1}{5}$ for evaporation and drainage, it would leave about 84 feet, would it not? Allowing $\frac{1}{5}$ for drainage and for evaporation, we would be submerged under a wall of water of 84 feet in San Francisco, if we had had that rainfall for the last 50 years.

A. I do not understand that that implies that the calculation is incorrect. You assume that this calculation is all right.

* * * * *

Q. In your book, Professor, there was something said about making tests of coals which were submerged in water; that was one of the experiments made by Mr. Powers, of the Santa Fe; how was the coal submerged in water for the purpose of testing?

A. Put in a barrel and enough water put in to cover the coal.

Q. It was just saturated with water to the point of saturation or moistened with water to the point of saturation.

A. No, the barrel was filled with water, so that it covered the coal completely.

Q. And, according to Powers, here, the coal that he tested, he allowed to remain in that condition for about 7 months; it appears from his report that the coal stored in water under those circumstances lost from 0.26 of 1 per cent to 5.92 per cent in weight, and from 0.56 of 1 per cent to 8.75 per cent in calorific

(Testimony of S. W. Parr.)

value. Now, the water did not do any damage to that coal, did it; it did not increase the weight?

A. The decrease in calorific [1554—1491] value which would indicate the damage, if you so call it.

Q. But, so far as weight is concerned, it did not increase the weight.

A. Those figures are referred again to the oven-dried condition of the coal.

Q. That is, after it was taken out of the barrel of water, a certain part of it is subjected to the test of heat, that is, 105 degrees centigrade, as I take it, and the moisture driven out, and then a sample is taken.

A. Yes, sir.

Q. That proves, does it not, that the water, itself, had no effect whatever on causing oxidation of the coal to an extent which increased its weight; is that not the fact?

A. The access of oxygen to the coal that is under water, I don't understand what your case would be.

Q. Does not the oxygen from the water unite with the coal, causing oxidation?

A. The oxygen in the water is already united and cannot oxidize the coal.

Q. I thought the humidity of the atmosphere tended to oxidize the coal; doesn't it?

A. It is the oxygen of the atmosphere that oxidizes the coal.

Q. Is it free oxygen in the atmosphere, or oxygen in the atmosphere of the air that combines with the coal?

A. It is the free oxygen of the air that does the work.

(Testimony of S. W. Parr.)

Q. Is it the free oxygen of the air that oxidizes steel, and iron, and metals, generally? A. It is.

Q. Or is it the oxygen in the water that causes the rust? A. It is the oxygen from the air.

Q. From the air? A. It is. [1555—1492]

Q. Will iron rust in a dry room, such as this?

A. It will.

Q. Will an iron or steel rule, placed upon this desk, and allowed to stay here for a hundred years, be affected by rust, if there is no moisture in the air?

A. The moisture facilitates the oxygen.

Q. Now, as a chemical fact, Professor, is it not the oxygen of the moisture in the air that combines with the elements in the coal and causes the oxidation of the coal?

A. I cannot, as a chemist, answer that question yes or no.

Mr. SULLIVAN.—Q. I will ask you this question: Is it not a fact that oxidation of steel and iron, and coal, and materials coming in contact with water, is caused by the union of the oxygen in the water with the iron, the coal, or the steel?

A. Steel would not rust in water if there were no free oxygen in the water. It would remain bright indefinitely if there were no free oxygen in the water.

Q. Will coal oxidize where there is no free oxygen in the air? A. It will not.

Q. Coal does oxidize when there is humidity.

A. There is free oxygen in the air, and it oxidizes; the humidity had nothing to do with the oxidation.

Q. You say the oxygen of humidity or the oxygen

(Testimony of S. W. Parr.)

of water has nothing at all to do with the oxidation of coal. A. It does not.

Q. Are you positive about that?

A. The free oxygen of the air is what does the work, just as it does in the case of the iron.

Q. How does the oxygen of water, or the moisture, rather, facilitates the oxidation? A. Of the iron.

Q. Yes, of the iron or of coal.

A. Because it carries oxygen with it. There is oxygen dissolved in the water, just as other substances dissolve in water, and that [1556—1493] is the agent that is active in oxidizing the iron.

Q. The water consists of oxygen and hydrogen in certain parts, and you say in addition to that there is free oxygen in solution, is that so? A. Yes, sir.

Q. And it is this free oxygen in solution that causes the oxidation of the metal.

A. The action—coal under water is not subject to the same action.

Q. Is there any oxidation of coal under water?

A. So far as we are able to determine, there does not seem to be any appreciable oxidation of coal when it is submerged under water.

Q. Is there any oxidation?

A. The experiments are entirely too meagre to base any definite statement on about it.

[Endorsed]: Filed Jan. 19, 1915. W. B. Maling, Clerk. By C. W. Calbreath, Deputy Clerk. [1557—1494]

[Testimony of E. E. Somermeier, for Defendants.]

E. E. SOMERMEIER, a witness called for the defendants, and sworn, testified as follows:

Direct Examination by Mr. OLNEY.

I am Professor of Metallurgy in the Ohio State University, and reside in Columbus, Ohio. I graduated from the afore-mentioned University with the class of 1898 and have been connected with the Department of Metallurgy there ever since that time. I began the study of coals in 1899 and have been interested therein practically ever since that time. I have made a specialty of that study. I was formerly associated in my studies and investigations in coal with N. W. Lord, formerly Professor of Metallurgy in the Ohio State University. He was the Chemical Director of the Coal Laboratory of the United States Geological Survey for a considerable period from 1904 on. At the time of his death he was consulting chemist of the United States Geological Coal Testing Laboratory at St. Louis, Missouri, and also of the United States Government laboratories at Pittsburgh, Pennsylvania, Washington, D. C., Norfolk, Virginia, and Columbus, Ohio. Professor Lord undoubtedly ranked as the foremost authority in America on coals. He was a pioneer in this study, especially from the modern standpoint in respect to determination of heating value and commercial utilization. His death occurred in 1911, when I succeeded to his position. I have in my study of coals been particularly concerned as a specialty with the determination of moisture, oxidation and heat-

(Testimony of E. E. Somermeier.)

ing value. I did the coal work for the Ohio Geological Survey from 1900 to 1907. The results [1558—1495] of that work appear in published form in Bulletin Number 9 of that survey, partly under my name and partly under Professor Lord's. Coal is the most important mining industry in Ohio. The annual production is upward of 20,000,000 tons. From May, 1904, to September, 1905, I had direct charge of the United States Government Laboratory at St. Louis, Missouri. That was the testing laboratory of the United States Geological Survey. After that I remained in a supervisory committee with respect to that laboratory until it was moved to Pittsburgh in January, 1907. Also, in the years 1906—1907 I was in charge of a branch laboratory of the United States Geological Survey at Columbus, Ohio. My assistants in that laboratory were Mr. Fieldner and Mr. Davis, who are at present Chief Chemists for the Coal Laboratories of the Bureau of Mines. In association with Professor Lord, I had consulting connection with the United States Laboratories at Pittsburgh, Norfolk, and Washingeon, and visited each of these places one or more times. The Norfolk Station was in connection with the Jamestown Exposition, just as the aforementioned St. Louis Station was in connection with the World's Fair Exposition. I have published a number of articles in the Journal of the American Chemical Society, and I am also the author of a text-book on coal. I have for various coal companies examined the coals in mines and passed on its quality. I have been engaged in the

(Testimony of E. E. Somermeier.)

commercial testing of coal with reference to the utilization of coal under steam boilers, that is to say, the conditions for obtaining the highest efficiency and best return for fuel. [1559—1496]

Q. Now, Professor Somermeier, to what extent if at all, does coal vary in weight from time to time as coal is handled commercially, and in the course of transportation from the mines and storage and sale?

A. It depends very largely upon the condition of the coal and the time in transit; it may vary anywhere from 1 to 10 or 15 per cent.

Q. Is that fact a fact well known to science?

A. Every man familiar with the coal business in the east is familiar with it.

Q. What are the particular causes of such changes in weight? A. Changes in moisture and oxidation.

Q. What is the practice among large coal consumers in the east, including the Government of the United States, in regard to purchasing coal upon specifications containing a provision as to the moisture content of the coal?

* * * * *

A. The larger concerns in the east buy coal under specifications which recognize the fact that the moisture in the coal is simply an increase in weight without any increase in heating value.

Mr. OLNEY.—Q. Now, when coal is purchased under specifications containing a provision as to moisture content, what is the method followed for ascertaining whether the coal conforms to those specifications, in determining what allowance must

(Testimony of E. E. Somermeier.)

be made by the seller because of the moisture content of the coal?

A. The coal is sampled at the time it is weighed and analyzed, and the amount of moisture determined, and a settlement made upon that basis.
[1560—1497]

Q. Now, how often would such samples be taken in the case of a delivery extending over a period say of days?

A. It should be taken with every delivery that admits of the expense of taking samples; in practice it is not possible, or is it not profitable at least to sample less than 50 ton deliveries.

Q. Suppose the coal is being delivered in deliveries of 50 tons each per day?

A. Each day's deliveries should be sampled.

Q. And the sample should be taken daily in this case? A. Yes.

Q. Why should the sample be taken daily?

A. Because the moisture content of the coal varies continually.

Q. It varies from day to day, does it? A. Yes.

Q. Now to what extent do these variations from delivery to delivery and from day to day in the moisture content correspond to changes of weight?

A. They are practically the same thing; a change in moisture means a change in weight, for all practical purposes.

Q. Now, are these variations in moisture content and in corresponding weight changes confined to differences between different coals or coals from dif-

(Testimony of E. E. Somermeier.)

ferent mines, or are they found in deliveries of coal of the same character from the same mine?

A. They are found in every coal, it does not matter from where it comes, the same mine or different mines, it shows changes in moisture.

Q. In that connection, take the coal from a particular mine, would there be any substantial variation in the [1561—1498] moisture content of that coal as mined regardless of whereabouts the coal was taken from?

A. As it occurs in the mine, the moisture content in the mine will run pretty near uniform from year to year; practically we might say that it is constant; you can say that for one mine the moisture will run about so and so; for another mine another value.

Q. Then these changes in the moisture content of coal and the corresponding changes in weight or variations in weight are variations which take place after the coal is broken out from the seam?

A. Yes.

Q. Are the facts in regard to the constancy, as I may say, of the moisture content of the coal from a given mine and the variability of the moisture content of the coal after it has come out of the mine facts well known to science?

A. Yes, the United States Government has sampled coal from hundreds and hundreds of mines, and has taken the utmost pains to have the mine sample show the moisture in the mine at the time, so that it might be of value for all time, showing what the moisture in that mine runs.

(Testimony of E. E. Somermeier.)

Q. Now, within what range are these variations in weight, variations in moisture content and corresponding variations in weight after the coal leaves the mine, observed in commercial practice?

A. Anywhere from 3, 4, 5, 6 or 7 per cent.

Q. Has the Government published a bulletin showing the result of analyses of coal deliveries to it?

A. Yes.

Q. That is published in Book 41, is it not?

A. Yes.

Q. Have you it there? A. I have a copy of it.

Q. Will you turn to the tables that are there [1562—1499] given showing such deliveries and read to the jury some of the variations in weight in the same coals which are there shown?

* * * * * * * *

A. On page 38 of that Bulletin the deliveries to the Baltimore, Maryland Customs, show moisture in October, 3.50; moisture in January, 8.40; moisture in February, 6.75.

Q. What is the extreme difference in variation that is shown there?

A. Well, the sample at Boston, Massachusetts.

Q. (Intg.) I mean in this particular table that you have reference to.

A. This particular table is about 4.9 per cent.

Q. Is all of that coal from the same mine, represented in that table?

A. It is marked as being the same kind of coal, anthracite screenings.

Q. That difference of 4.94 would indicate a change

(Testimony of E. E. Somermeier.)

in weight in that coal as delivered at different seasons of the year? A. Yes.

Q. Now, just pick out one or two more.

A. Boston, Massachusetts on page 39, delivery to the post office and Subtreasury, shows in October, 1.20; in January, 7.10; February, 4.90, a difference of \$ 5.90. Brooklyn, New York—

Q. Now, in that case where you find a difference of 5.90 per cent is that a difference in regard to the same coal?

A. Yes, it is marked Pocahontas and New River coal. As mined that coal does not contain over 2 per cent, $1\frac{1}{2}$ to 2 [1563—1500] per cent so that any increase above that would mean that the water had gotten in it, after leaving the mine.

Mr. ROCHE.—Q. Does that refer to screenings?

A. No this is the run of the mine coal.

Mr. OLNEY.—Q. Any other figures there?

A. Brooklyn, New York, Courthouse and Post-office, Anthracite, Buckwheat—

Q. Just leave out the case of the Anthracite and pick out the bituminous coal?

Mr. ROCHE.—The first illustrations from which the witness has read refer to Anthracite.

A. The first one is; the second one does not; the Pocahontas is not an anthracite coal. Buffalo, New York, October, on page 40, 2.40; January, 6.30; February, 4.20, an extreme difference of 3.9. This is Shawmut coal from Pennsylvania, a bituminous coal. Cincinnati, Ohio, on page 41, shows for October, 1.80, January, 4.05, February 3.15. This is New River

(Testimony of E. E. Somermeier.)

Smokeless coal from West Virginia; also a bituminous coal. Milwaukee, Wisconsin, October, 3.00, January, two shipments, one running at 5.30, and the other running 9.90; February, two shipments, one running, 7.85 and the other running 6.00%. Yougheogheny screenings, Pennsylvania; that is bituminous coal.

Q. Do you know what the percentage of that coal in the mine is?

A. The Yougheogheny coal?

Q. Yes.

A. It is a low moisture coal, 2 or 3 per cent; I don't know what it is exactly.

Q. What is the maximum percentage?

A. The maximum percentage here is 9.90, I think [1564—1501] I could get it for you.

(The tables above referred to were here stated to be in Bulletin 41, heretofore introduced in evidence in connection with the examination of Professor Parr, as Defendants' Exhibit "GG.")

Q. Now, Professor Somermeier, what is the significance of these large variations which I have asked you to call to the attention of the Jury—what do they show?

A. They show that the coal has increased in weight from the time it was taken from the mine until it was delivered at the various places.

Q. By those percentages? A. Yes.

Q. Now, by the way, will you glance through these tables and see if there is any difference in the percentages between seasons of the year?

(Testimony of E. E. Somermeier.)

A. These values I have already given you would be indicative of that, the winter season being the wet season in most of these places in the east.

Q. By the way, Professor, Somermeier, in connection with those variations are you acquainted with the Government method of sampling? A. Yes.

Q. And of making analyses? A. Yes.

Q. Did you have anything to do with the installation of the system, in fact?

A. Well, I might say I founded it.

Q. Now, in connection with these variations in weight or in connection with the analyses as published [1565—1502] in the Government reports for the purpose of getting the moisture content, is there a factor of error between the result as published and the actual moisture content?

A. Yes, there is, in a majority of cases.

Q. Which way is that factor?

A. Well, the results as published, wherever the moisture runs high, are low of the coal moisture that is in the coal.

Q. Why is that?

A. Because of the difficulty of avoiding losses during sampling down, where the coal contains much moisture.

Q. Is there the same difficulty in getting the correct moisture content where the moisture content is low?

A. No; if the sample contains very little moisture it cannot lose very much in sampling down, and there is very little difficulty with it. In the case of the

(Testimony of E. E. Somermeier.)

high moisture coals it takes just as long to sample them down and they can lose moisture 10 or 20 times as fast, hence the errors may be 10 or 20 times as large in the high moisture coal.

Q. Then in fact the variations in moisture content which actually exist are to some extent larger than those that appear in that published report?

A. Yes undoubtedly.

Q. Have you made yourself familiar with the character of Wellington coal or Richmond coal or Australian coal and the Japanese coal received here?

A. Yes.

Q. As to whether it is anthracite or bituminous coal or lignite? A. They are all bituminous coals.

Q. I think you testified that while the coal from all parts of the mine would have about the same moisture content—I want to ask you a question in that connection: [1566—1503] will that moisture content vary as between mines?

A. That depends considerably upon the region; in regions where the coal is not too much disturbed, the same mine or different mines in the same region will run about the same moisture content; in other regions if the coal is much broken up by geological disturbances, different mines will differ quite a little in moisture content.

Q. In the same locality? A. Yes.

Q. Now, is there any difference, for instance, in the moisture content generally between the coal of West Virginia and the coal of Illinois?

A. Yes, there is a very large difference.

(Testimony of E. E. Somermeier.)

Q. What is the character of the coals from Illinois?

A. The coals of Illinois will contain anywhere from 12 to 15% moisture in the mine.

Q. And the West Virginia?

A. West Virginia, most of them run as low as 2 or 3%.

Q. Are coals generally divided with reference to their moisture content into high and low moisture coals?

A. Yes, for convenience they are usually classified as high moisture coals, medium moisture coals and low moisture coals.

Q. What is the range of low moisture coals?

A. Anything below 4 or 5 per cent.

Q. Now, have you made analyses of these Australian, Wellington and Japanese coals to ascertain the character of these coals as to moisture content?

A. I [1567—1504] have analyzed the Wellington and Australian. I failed to analyze the Japanese.

Q. What did you find the case to be with the Wellington and Australian coals?

A. They were low moisture coals, containing about 3 per cent of moisture.

Q. When you call it a low moisture coal, you have reference to the moisture content of the coal in the mine, have you not? A. Yes.

Q. Is there any difference between the behavior of a low moisture coal and that of a high moisture coal, after it has been taken from the mine and exposed to

(Testimony of E. E. Somermeier.)

the air and weather in the course of shipment and storage and handling?

A. There is a very marked difference. The low moisture coal, in coming from the mine, will lose only a small amount of moisture, because there is only a little moisture in the coal; a high moisture coal, such as Illinois, for instance, may lose ten per cent of moisture before it gets down to a condition of somewhat near equilibrium with the atmosphere.

Q. Take the case of a coal coming down here from Nanaimo, and by the way, Professor, have you visited Nanaimo? A. Yes, sir.

Q. Take the case of a coal coming down here from Nanaimo, the Wellington coal, the coal that is mined there, coming in a vessel under hatches, and it takes, say, four days to make the journey, what change, if any, in the moisture content of that coal will take place in the course of that voyage?

A. In my opinion, the change would be very small.
[1568—1505]

Q. Could you form an opinion as to whether that change would be an increase in weight, small as it may be, or a decrease in weight, small as it may be?

A. Yes, I could form an opinion as to that.

Q. What is it?

A. There very probably would be a very slight decrease.

Q. After that coal arrives here, and arrives here with a low moisture content, perhaps a little lower than the moisture content which it had when it was mined, what is going to be its behavior with regard

(Testimony of E. E. Somermeier.)

to moisture content?

A. As I stated before, the low moisture coals cannot lose very much moisture, and this San Francisco climate is high in humidity, averaging about 80, so that that coal after leaving the mine and coming into this climate, cannot lose, in my opinion, over .3 or .4 of a per cent; on the other hand, it can retain or gain practically all the rainfall that ever falls upon it, if it is subject to rainfall, so that it may increase anywhere from 1 to 7 or 8 per cent.

Q. If this cargo of coal that is shipped from Nanaimo here had been rained on in the course of being loaded and before it is weighed for shipment, would it lose .3 or .4 of a per cent by the time it arrived here, or gain, or would it lose more or gain more?

A. If it is wet up there at the loading point, it would stand a chance of losing considerable on the voyage.

Q. Are all the conditions of transporting coal under hatches from Nanaimo here, conditions that are favorable to a loss of weight, rather than a gain of weight?

A. Well practically all the conditions; of course, [1569—1506] even in that short journey, there is a condition that would favor a slight increase in weight, due to oxidation, but that is a minor effect, as compared with a condition that would tend to make a loss for that period of time.

Q. Now, as between a fine coal and lump coal, which will increase the more by reason of an accession of moisture, say of rain? A. Fine coal.

(Testimony of E. E. Somermeier.)

Q. What are the approximate limits to which lump coal will take on moisture and fine coal will take on moisture, that is, assuming you have a low moisture coal, such as we are dealing with here?

A. Lump coal will not take on over 1 or 2 per cent, while fine coal, depending upon the degree of fineness, may take as high as 10 or 15 per cent.

Q. Were you present when a test was made to ascertain the percentage of fines in a cargo of Australian coal that was landed here? A. Yes, sir.

Q. Just tell the jury what that experiment was, or test was?

A. The test was to determine the percentage of fines in the coal in the bunkers at Folsom Street, and was made by simply keeping track of the amount of coal and the amount of screen coal that came from coal in the ordinary course of business during, I believe the test extended two days, the amount of coal handled amounted to 700 tons, and the screenings amounted to about 24½ per cent, somewhere in that neighborhood, I have not the exact figure with me.

Q. Have you observed any other cargoes that were [1570—1507] discharged there, excepting that particular one?

A. I have observed a number of cargoes.

Q. Did you observe cargoes coming in with greater percentage of screenings?

A. Yes; I should say that the test was, if anything, rather below the average in the amount of fines; and that some of the cargoes, from their appearance, would run 40 or 50 per cent fines.

(Testimony of E. E. Somermeier.)

Q. To what extent would a pile of screenings, or a pile of coal containing a large percentage of screenings, give up its moisture when it has once been thoroughly wet?

A. It would give it up, of course, from the surface, but if the pile is wet in the interior, it will give it up very slowly; after it dries out on the surface, and is apparently dry, if you disturb it down a few inches, you will find damp coal.

Q. Suppose a pile of coal, with a considerable portion of screenings, were wet, say in the winter, or in the spring, and stored out in the open, exposed to the sun, and a lot of it remained there for six months, in this San Francisco climate without rain, would that pile of screenings retain a substantial portion of its moisture?

A. I would say that it would retain the greater portion of its moisture; the drying out would be confined to the outer foot, or two, of the pile.

Q. Did you take any samples at Nanaimo to ascertain the behavior of the coal there? A. Yes, sir.

Q. Just tell the jury what you did?

A. I sampled the mine in two places, and I also obtained a sample of the lump coal which had been standing in a car under cover for [1571—1508] five or six weeks: I also sampled a car that had been standing on the track, a run of mine coal, for five or six weeks; I also took a sample of fine coal off the top of a car where it had been exposed to a drying out; at the time I took the sample, it was about four o'clock in the afternoon, and the sun had been quite

(Testimony of E. E. Somermeier.)

warm all day; I took the temperature and the humidity at that time, and the humidity only ran about 40 per cent, so that the sample was taken under what might be called extreme conditions of dry weather for that port.

Q. And you found that the moisture content of the sample taken from the mine was about what you have already testified? A. About 3 per cent, yes, sir.

Q. And what was the moisture content of the coal that was in a car under a shed, under a cover?

A. The moisture content of that sample was 2.54 per cent; the moisture content on the car sample which had been standing in the yards ran 3.16 per cent—no, I should correct my statement on that sample in the shed, that ran 2.75; the sample in the shed ran 2.75, the sample on the track 3.16, and the sample of fine, dry coal on top of the car ran 2.2.

Q. Did you take any other samples except these samples that you have testified to?

A. I took two mine samples. The mine sample from the hard coal ran 2.97, per cent, and the sample from the steaming coal seam ran 2.92 per cent.

Q. Did you take any samples here in San Francisco? A. Yes, sir.

Q. Of what coal, Professor Somermeier?

A. I sampled a bunker of Australian and a bunker sample of the screenings, and I also obtained a sample which had been collected by [1572—1509] Professor Folsom at the time the ship was unloaded. The sample from Professor Folsom ran 3.19 in moisture; the sample of the screenings ran 3.25 and the

(Testimony of E. E. Somermeier.)

sample of the bunker ran 3.2.

Q. That was the coal as delivered, was it?

A. As delivered.

Q. That is, as it came out of the vessel?

A. The sample taken by Professor Folsom was a sample taken out of the vessel.

Q. Do you know what vessel it came from, what was the character of the coal?

A. I only have the description from Professor Folsom, it was an Australian sample, and the sample was dried.

Q. Now, Professor Somermeier, will you explain to the jury what this process of oxidation is about which you have spoken?

A. As long as coal remains in the seam undisturbed and protected by a cover of rock and earth, it remains practically unchanged, but as soon as it is broken out of the seam and exposed to the air, it at once becomes subject to atmospheric agencies, and undergoes what is chemically called weathering. That can be noticed that the fact that the coal that comes out of the mine after awhile is noticeably duller in appearance at a fresh fracture, and occasionally you can notice in the crevices of the coal a gray or light colored powder. The dulling of the surface, and this light colored powder, are both the result of oxygen being taken up by the substances of the coal. The light-colored powder, or greenish in large masses, is the result of the action of the oxygen [1573—1510] upon the sulphur in the coal; the sulphur in the coal—it always occurs in coal, and usu-

(Testimony of E. E. Somermeier.)

ally occurs in what is chemically called sulphur balls or brassy sulphur, or pyrite, or fool's gold—it has a number of names; it occurs sometimes in large masses, and sometimes in flakes so thin that you can hardly detect them with the naked eye. In the large masses, that sulphur does not oxidize to amount to anything, but wherever it occurs in thin films or flakes, it presents a large surface to the air, and you get a very appreciable oxidation, and that is what causes the appearance of this gray powder along the fracture of the fissure. The dulling, as I have said, is simply the taking up of oxygen by the carbon and hydrogen compounds of the coal. That is not so easily explained in complete chemical terms as the oxygen goes into the coal and is held there; some little bit of it escapes out again, carrying a very small amount of carbon; but the chemical experience is that the amount that goes off is only about one-quarter of the amount that comes in, so that the net increase in weight is about three to one. That ratio is never overbalanced until the coal gets warm enough to burn. Of course, when the coal burns, it all goes off as a gas, or vapor. But in ordinary temperature, the oxygen that goes into the coal is retained there as a loose chemical compound.

Q. Does this process increase the weight of the coal? A. Yes, sir.

Q. To what extent? I will ask the question this way: What is the highest limit in the way of change of weight which has been observed this process may be carried [1574—1511] to?

(Testimony of E. E. Somermeier.)

A. I don't know that I could give you the highest limit, but I have in mind limits as high as four or five per cent.

Q. What effect has an increase in temperature upon this process of oxidation? That is, assuming always you do not get up to the ignition point?

A. An increase in temperature accelerates the rate of reaction; an increase in temperature of about 30 degrees for example, will about double the rate of reaction; if you go up 30 degrees more it will double it again, so you cannot get so very far up until the reaction gets high enough to make heat, and the more heat the more temperature and finally the coal burns.

Q. By this reaction, you mean the process of taking up oxygen?

A. The process of taking up oxygen.

Q. Take the case of a cargo which was stored, say in January of one year, and allowed to remain there during the balance of that year, and then was found to have commenced to heat and finally discharged in June of the year following, that is to say, that it had been there a year and a half, the cargo in the meantime having been kept under cover, where the water could not get at it, and where the rain could not fall on it, would you expect any substantial increase in weight from oxidation?

A. Yes, I should expect an increase, in a situation of that kind, anywhere from 2 to 4 per cent; I do not know, in fact, where I would put the limit.

* * * * *

Mr. OLNEY.—Q. Professor Somermeier, now

(Testimony of E. E. Somermeier.)

take the case of a storage pile in the open air, of a very considerable [1575—1512] storage pile in the open air, of a very considerable size, which began to heat, and in which they ran pipe down into the center of the pile, and around to various places in the pile, and through those pipe, they let water run into the pile, in an endeavor to stop the heating, and practically flooded the pile with water in that way, would the process of oxidation go on rapidly in such a case?

A. Yes, sir, it would go on as a rule more rapidly than in the other case, because that part of the oxidation which is due to the sulphur is accelerated by the moisture. That part of the oxidation which takes place in the coal substance itself takes place in a dried coal as well as in a wet coal; but any decided oxidation of the sulphur in the wet sample would make the oxidation results higher in a wet sample than in a dry sample.

Q. Is the process of oxidation increased by repeated wettings, that is, one after another?

A. The general tendency would be to increase the process of oxidation, because it would insure a plentiful supply of water at all times to that sulphur that might be present.

Q. Now, take the case of Australian coal, for instance, such as you have examined, brought here, but not heated, that is to say, it does not become heated, but is allowed to remain in a pile, and is perfectly normal, nothing unusual about it, at all, how rapidly would this process of oxidation go on there?

(Testimony of E. E. Somermeier.)

A. Well, I should say that in the course of two months that sample might oxidize, even under those conditions, perhaps half a per cent.

Q. Would the humidity of the atmosphere, as distinct from rain, have any effect upon these coals brought [1576—1513] here, either the Australian or the Nanaimo coal?

A. It would have a very appreciable effect upon the Australian coals, because of the fact that they come in—the samples that I saw, or the cargoes that I saw—practically dust dry, and coming into this atmosphere a dry coal will take up moisture out of the air in very appreciable quantities.

Q. And what would those quantities be?

A. I have performed experiments in the laboratory which have run as high as 2 per cent with a change of humidity of 20, that is, a humidity running from 50 some to 70 some, but I would not believe that that would occur to that extent on a cargo.

Q. Will you give an estimate of within what limits that might take place?

A. I would not want to put the estimate over half a per cent, and probably less than half a per cent. Coal is very peculiar in that respect, in that it has a limited ability to take up moisture, but within that limit, it has a very strong affinity to take up moisture, and until it is satisfied it will take up very rapidly from substances which, themselves, hold moisture; that is so well known that in the laboratory, in the analyses of coal, in determining the moisture in the laboratory, the sample is heated in an oven for an

(Testimony of E. E. Somermeier.)

hour at 105 degrees centigrade, that is a little above the boiling temperature of water, and as soon as it is taken out of the oven, it is put in a closed container, containing calcium chloride, which is a chemical substance, and which has a great affinity for water, and it is allowed to stay in there until the sample is cool, and then it is weighed; the loss in weight is, of course, a figure that is called [1577—1514] moisture. If that sample is weighed promptly, the results are different than if the sample be allowed to remain over night, with that drying reagent as during the night that sample of coal will take up out of this dry reagent, appreciable quantities of moisture again; so that samples that might run 3 per cent of moisture loss if weighed promptly, if kept over night, in contact with that drying reagent, will take up enough moisture out of that drying reagent to increase its moisture loss to only 2 per cent; in other words, it will take up a per cent out of the desiccated reagent put in there and keep the moisture from going back into it. The chemist has to be very particular not to allow his chemical to lag, he must take it up very quickly; it cannot be allowed to remain over night; unless you have a stronger desiccated reagent than calcium chloride. I had occasion in my work with the Government, to do a very great amount of experimenting in that line, because the moisture determination is such an important determination, from a commercial point of view, and I proved conclusively that samples would run a per cent low if they were not weighed up the

(Testimony of E. E. Somermeier.)

same day they were started, unless concentrated sulphuric acid was the drying reagent; concentrated sulphuric acid will take up water so strong that even the coal cannot take it away. The calcium chloride, which is a government chemical dryer, has not an affinity strong enough to hold it.

* * * * *

Q. Have you familiarized yourself with the moisture records of the United States Meteorological Station here [1578—1515] in San Francisco?

A. Yes, sir, I have.

Q. And have you familiarized yourself with the humidity records, likewise? A. Yes, sir.

Q. Now, take the case of a firm importing into this port, and selling here during the course of years cargoes of coals such as those you have examined, that is, low moisture coals, and assuming for the purposes of your answer that the coals are discharged from the ships in which they are brought here into bunkers, barges and yards, and delivered from such barges, bunkers and yards and sold by the importer, would such coals increase or diminish in weight within the time of their importation and the time of their sale, bearing in *mine* the climatic conditions existing here? A. They would increase in weight.

Q. Are you familiar with the bunkers, and barges, and yards of the Western Fuel Company?

A. Yes, sir.

Q. Now, assume that the Western Fuel Company was engaged in the business of importing and selling coal during the years 1906 to 1912, inclusive, and that

(Testimony of E. E. Somermeier.)

during that period it imported into the port of San Francisco approximately 2,000,000 tons, that these coals were British Columbia, Japanese and Australian coals, in the proportion of about 70 per cent from British Columbia, 5 per cent from Japan, and 25 per cent from Australia, and were of the character of the coals you have examined here, and that in order to carry on its business, the Western Fuel Company kept in stock in its bunkers, including the Folsom Street bunkers and other bunkers, and in its barges, similar to those now in use by it, and in its yards, an average of 32,000 tons of these coals during the period mentioned, [1579—1516] and that of these 32,000 tons, not to exceed 7,000 tons was stored under cover, and that 25,000 tons was stored either in open bunkers or in barges, or in yard piles, what changes, in your opinion, did those coals undergo while in storage?

A. Changes in weight and oxidation, or, rather, changes in moisture and oxidation.

Q. Did those changes affect the weight of the coal?

A. Yes.

Q. Was the weight increased or decreased by those changes? A. The weight was increased.

Q. To what extent, in your opinion, was the weight increased?

* * * * * * * *

A. From 2 to 4 per cent, I would say.

Q. Have you ever visited the barges when they were delivering coal to Pacific Mail liners?

A. Yes.

(Testimony of E. E. Somermeier.)

Q. And you know the character of the coal so delivered, that is to say, as to whether it was fine or coarse coal?

A. Yes, sir, I have a fair idea of it.

Q. Now, where such coal was so dry as to be dusty in the course of handling, what percentage in weight of water would be required to be added to it, in order to lay the dust?

* * * * * * * *

A. Well, I would say that under those circumstances, if the coal was so dry as to require wetting down, it would take at least two per cent to wet it, and bearing in mind the practical conditions under which the water would have to be applied, that some of it would be [1580—1517] soaked much more than enough in order to insure that the other secured a sufficient amount to wet it, that there might be as much as 4 per cent added; and on the average, perhaps 3 per cent.

Mr. OLNEY.—Q. Now, if you assume that the coal delivered by the barges was wet down during half the year, that is, during the dry months, six months of the year, and that the amount delivered year by year, that is, each half year by half year, by these barges, was approximately the same, you would have from 2 to 4 per cent, or an average of 3 per cent, say, added to these particular barge loads which were wet, and on the average, extending over the whole year, you would have half of that, or $1\frac{1}{2}$ per cent, would you not? A. Yes.

Q. In getting the percentage to which the coal may

(Testimony of E. E. Somermeier.)

have been increased by the natural causes to which you have already testified, you would then, so far as the barges are concerned, assuming that half of them are wet down, add $11\frac{1}{2}$ per cent to these percentages of from 2 to 4 per cent from the natural causes to which you have already testified.

A. Yes, sir, that would follow as a natural consequence.

Q. That would follow simply, of course, as to the barge coal. A. Yes.

Cross-examination by Mr. SULLIVAN.

I am at present engaged as an expert by the Western Fuel Company. I began my investigations for them last August, at the same time when Professor Parr began. We [1581—1518] were together at Nanaimo and we are here together at San Francisco, but we have carried on our chemical investigations at different places. We carried on correspondence with one another during the period of time that each of us was carrying on these investigations.

I received a copy of a report that Professor Parr had sent to the counsel for the Western Fuel Company here in San Francisco. I think I wrote Professor Parr relative to my chemical results on the mine samples, and he sent me a tabulation of his chemical results on the mine samples. The figures that I supplied in this tabulation were the moisture figures. I have not read over the testimony of Professor Parr which he gave upon the trial of this case. I had not finished my determinations at the time I wrote Professor a letter. I simply had given him

(Testimony of E. E. Somermeier.)

the determinations that I had completed. The figures I sent him were the data on the moisture determinations. The complete report contains determinations of heating and sulphate oxidation. The figures that I supplied Professor Parr were the moisture figures, and I received a copy of his moisture figures also. On the bottom of the page there was no other data, but there was a continuation of the discussion.

I was present at the time when Professor Parr took samples from the car at Nanaimo. We sampled the same part of the car under the shed, but the samples taken out in the yard were from separate cars. I took three samples and Professor Parr two. On the cars out in the yard, Professor Parr sampled one and I sampled two, but neither of the cars which I sampled was the car that Professor Parr sampled. I took my samples with me back to the laboratory. I have given a report of my analyses thereon. The sample that I took from the mine to the laboratory weighed 7 to 9 pounds.

Q. Did you reduce the weight of that for the purpose of your analysis?

A. We used that sample to get the final sample for analysis.

Q. What was the last sample that you made—what was the weight of the last sample which you analyzed?

A. That was pulverized and analyzed?

Q. Yes. A. About an ounce.

Q. Now, then, really the amount of coal which you

(Testimony of E. E. Somermeier.)

[1582—1519] analyzed was just one ounce in weight; is that so? A. It was less than that.

Q. Less than an ounce?

A. These chemical analyses are made on the basis of one gram samples, and one gram is one-twenty-eighth of an ounce.

Q. You took from the mine, from a certain place in the mine, a certain quantity of coal.

A. About 40 pounds came down from the seam.

Q. You reduced that down to what weight?

A. Before I took it out of the mine?

Q. Yes. A. To fill that can I took 7 or 8 lbs.

Q. Was that the can you took back with you to your laboratory? A. Yes.

Q. Then after bringing that can back to your laboratory you took an ounce of that can, did you?

A. No.

Q. How much did you analyze?

A. I analyzed less than an ounce, but I did not take just an ounce out of the can. I took the whole sample and reduced it down; by a method of quartering and subdividing we make the sample finer until the final sample, which is as fine as flour is, amounting to about one ounce.

Q. To about one ounce; what size would that be?

A. One ounce of coal in a finely pulverized condition—

Q. (Intg.) About the size of the tip of my thumb?

A. No, it will occupy the biggest part of a 4-ounce bottle, or a 2-ounce bottle I should say.

Q. That was pulverized you say, and from an

(Testimony of E. E. Somermeier.)

ounce [1583—1520] of that pulverized coal you determined the contents of the coal in that mine, did you—the moisture content of the coal in that mine?

A. Well, we determined a part of the moisture content from that pulverized sample. In order to answer that question fully I will have to go into the technical details of making a chemical analysis of coal.

Q. I don't think that is necessary. We understand that you analyzed ultimately about one ounce of pulverized coal for the purpose of determining the constituent elements in that coal? A. Yes.

Q. And in that particular sample?

A. But preliminary to the final pulverization I gave the sample an air-drying to allow it to come to an equilibrium with the air in the laboratory before I analyzed it, and that air-drying loss was figured into the final result, so as to get it back to the sample as taken at the mine.

Q. Did you submit to the air-drying process the 7 or 8 lbs., or just this one ounce that you pulverized?

A. The whole 7 or 8 pounds that I have just stated, I submitted the coarse sample to the air-drying process, so that when I crushed the sample to a powder it would not lose moisture; I took the utmost precaution to get the moisture content within that sample to the best of my ability.

Q. These tables which you have here indicate the analysis which was finally made of this one ounce

(Testimony of E. E. Somermeier.)

sample? A. Yes.

Q. And from your analysis of the one ounce sample you came to the determination that all of the coal [1584—1521] in that mine was of the same kind, did you?

A. Well, the analysis, with reference to the one ounce sample related to the air drying previous to that.

Q. But you came to the conclusion, did you not, that all of the coal in that mine was of the same character, and quality as the one-ounce sample which you finally determined after the coal had gone through the air-drying process?

A. No, I didn't come to the conclusion that all of the coal in that mine was exactly the same as that, but I came to the conclusion that that sample was representative of the coal in that mine.

Q. Representative of all the coal in that mine?

A. All the coal in that mine within a reasonable distance; I don't know how large that mine may be, but I should say if it is an ordinary mine, it was representative of that coal; but other samples taken in other parts of the mine might show a decided difference in ash and sulphur.

Q. Now, isn't it a fact—

Mr. OLNEY.—Q. (Intg.) How about the moisture content?

A. But the moisture does not vary appreciably in different seams of the mine.

Mr. SULLIVAN.—Q. You say the moisture content does not vary?

(Testimony of E. E. Somermeier.)

A. Appreciably; I did not say it did not vary.

(Examining counsel here referred to the report submitted by the witness on the samples he had secured at Nanaimo of Nanaimo coal.) [1585—1522]

Q. Where are the mine samples?

A. No. 3 and 4 in my table.

Q. Mine sample No. 3, hard coal, Nanaimo, 2.53.

A. Washington method.

Q. Washington method?

A. 2.97 Pittsburg method.

Q. 2.97 Pittsburg method?

A. No. 4, 2.61 Washington method, 2.93 Pittsburg method; that is the second mine sample.

Q. No. 4, 2.61, Washington method, 2.92, Pittsburg? A. Yes.

Q. Slack from top of car, Washington method, 1.74 Pittsburg method, 2.20?

A. Yes, that is the sample that I have explained was taken in the afternoon—

Q. Off the top of the car?

A. Off the top of the car when the humidity was .41.

Q. I see here on Professor Parr's table that he shows the moisture content on the north face slope about 3.55; that is considerably in excess of any analysis which you made?

A. Yes, that is $\frac{1}{2}$ per cent; that is a small difference, when we are talking about the moisture in coal as a general proposition. I do not claim that the moisture in these samples in this mine do not vary within $\frac{1}{2}$ a per cent.

(Testimony of E. E. Somermeier.)

Q. What is that?

A. I never made any statement that the moisture in this mine would not vary $1\frac{1}{2}$ a per cent.

Q. Well, now, I see here, Professor Parr says that the moisture or at least the moisture content of coal taken from the open car, No. 4—

A. The open car?

Q. (Continuing.) —Was 4.44 per cent. Now, what is your analysis? Did you take any coal from that same car?

A. I did not take any sample from that car. I took one from the car adjoining. [1586—1523]

Q. From the car adjoining?

A. Sample No. 2, on my table, 3.16%, Pittsburg method.

Q. 3.16%, Pittsburg method; sample No. 2, is that it? Which car is that?

A. Sample No. 2, car on track.

Q. According to the Washington method it is 2.71? A. Yes.

Q. Now, Professor Parr says here, I don't know whether it is the Washington or Pittsburg method.

A. The Pittsburg method is the method he used.

Q. He says here, 4.44?

A. Yes, that is the condition I expected when I saw the condition in which he took his sample, much wetter; Professor Parr's sample, quite a portion of it was appreciably wet to the eye, while the sample that I took upon the other car did not have nearly as much evidence of dampness.

Q. Had these two cars been on the track during

(Testimony of E. E. Somermeier.)

your entire stay there in Nanaimo?

A. They had been there according to statements.

Q. Never mind the statements; so far as you observed, when you got there you saw these cars adjoining one another? A. Yes.

Q. When you left Nanaimo these cars were adjoining one another? A. Yes.

Q. They were hooked on to one another?

A. Yes,

Q. They constituted parts of the same train, didn't they. A. Parts of the same train.

Q. And you took the top off of one car and Professor took the top off another car?

A. No; that was not my statement.

Q. What was the fact?

A. My statement was I [1587—1524] sampled that car.

Q. How did you sample it?

A. I got down from the top to the bottom in the car and took the sample off from various parts from top to bottom in order to get the moisture variation from the top to the bottom.

Q. What did Professor Parr do with his car, the same?

A. The same way; we had two Chinamen at work there for us an hour and a half getting that sample.

Q. You had two Chinamen doing it? A. Yes.

Q. Now, then, according to the Pittsburg method, you show the moisture content of 3.15 and Parr shows that the moisture content *are* 4.44?

(Testimony of E. E. Somermeier.)

A. That is over one per cent, isn't it? A. Yes.

Mr. OLNEY.—The witness has already expressly stated that they were not taken from the same car.

Mr. SULLIVAN.—I know they were not taken from the same car.

Q. That is 1.28 per cent difference between your analysis?

A. Yes, but they are on different cars.

Q. I understand they are different cars. If he had taken a sample from one end of the car and you had taken a sample from the other end of the car, in all probability there would have been some difference, would there not?

A. Yes, most certainly have been some difference.

Q. And in all probability there would be the same difference.

A. No, I do not say it falls under the same difference. [1588—1525]

Q. If there be no difference, no substantial difference between the coals taken from the same part of the mine, how can there be any substantial difference in the coals taken from different parts of the same car?

A. The car had been standing exposed to the weather, so far as I know, for 6 or 8 weeks, the mine had been shut down for almost two months; I know there had been no coal taken out.

Q. You did not see it raining while you were there? A. No.

Q. How long were you there?

A. I have a weather report from the station, and

(Testimony of E. E. Somermeier.)

there was considerable rain before I was there; but there was no rain while I was there.

Q. What is the difference between the Washington method and this Pittsburg method?

A. Well, that is a difference in method used in the two laboratories. The Pittsburg Laboratory uses one method of sampling, which Professor Lord and I originated at St. Louis; the Washington method, they have so many samples to analyze there, that they use what might be called an abbreviated method, one that is a little bit quicker.

Q. They get quicker results, do they not?

A. Yes, they put the samples through in greater numbers. And that method as a rule runs 3 or 4 10ths of a per cent below the result by the Pittsburgh or the method I use in the second column; and that is in line with the [1589—1526] testimony that I gave earlier, that the results published in Bulletin 41 are lower than the rule, because they are analyzed by the Washington Laboratory.

Q. There is a difference of 45 hundredths of one per cent between your Pittsburg method and the Washington method. A. Yes.

Q. Is that usual?

A. It is usual; that is just what I have been saying.

Q. But there is a difference between you and Professor Parr, between your analyses according to the Pittsburg method—

A. (Intg.) You must bear in mind we have not duplicate samples.

(Testimony of E. E. Somermeier.)

Q. What is that?

A. We have not duplicate samples there. The only sample that might be at all called a duplicate sample was the sample taken under the shed, and Professor Parr took his sample the next day after I took mine, and the car had been dug down into, you see, for 24 hours before he took his. I don't know what Professor Parr's result is there, but I undoubtedly believe it is a little bit lower than mine. I took my samples when the car was opened up; Professor Parr was not there that day, and he waited until the next day, and we went down and took a new sample; but he got a sample that had been opened up to the air for 24 hours and the temperature in that room—it was a galvanized building, and was so high that undoubtedly he got a lower moisture than I did. If you will read it, Mr. Sullivan, I think it will verify that statement. [1590—1527]

I don't know how long the coal was in the car that I sampled, but I understood about six weeks. It rained during that period of time on the car outside. Said car was at all times exposed to the weather. The amount of oxidation for that time would be 2 or 3 tenths of a per cent. I took two samples from the body of the mine itself—samples 3 and 4. They contained 2.97 and 2.92 per cent. The sample that I got from the car had been exposed to the rain and the elements for six weeks and showed a moisture content of 3.16. I understand that the Nanaimo weather reports show that there had been $\frac{1}{2}$ of an inch of rain upon the coal that

(Testimony of E. E. Somermeier.)

was exposed to the weather in the car. As to my opinion as an expert, as to how much that rain ought to have increased the weight of the coal, I should judge that from moisture there ought to have been an increase of 3 or 4 tenths of a per cent. From oxidation there should be an increase during those six weeks of 3 or 4 tenths of a per cent also. There would be an appreciable evaporation during those six weeks, however.

Q. Now, then, in addition to the rainfall there would be an increase resulting from oxidation?

A. There would be three factors there of an increase from rainfall, a slight increase from oxidation and I don't know what the loss would be from evaporation during six summer months, but it would be appreciable.

Q. Is the climate of Nanaimo similar to that in San Francisco?

A. The climate of Nanaimo is somewhat similar to San Francisco as far as I know. You must bear in mind that the rainfall on top of a car one day and the next day the sun comes out, the moisture that don't get into the interior will evaporate off again, and that coal will dry off on the surface.

Q. But your sample went down to the bottom of the car; you took the moisture of the coal, the moisture resulting from the rain?

A. I took what moisture was [1591—1528] there; I don't know where it came from.

Q. I will direct your attention to these figures here; you say that the sample taken from the mine

(Testimony of E. E. Somermeier.)

showed a moisture content according to the Pittsburg method of 2.97; the sample taken from the open car showed a moisture content of 3.16, after six weeks' exposure on the car, a difference of .19 of one per cent. Now, there is a difference of .19 of one per cent between the moisture content of the coal taken from the mine and the moisture content of the coal taken from the open car which had been exposed to the rain and the elements for six weeks, and upon which $\frac{1}{2}$ an inch of rain fell; there is only a difference of .19 per cent. How do you explain that according to the theory you have announced here?

A. The sun was shining on the car most of the time during that six weeks.

Q. The same sun shines in San Francisco as shines up there, does it not? A. Certainly.

Q. And the moisture permeates through the mass of coal according to the duration of exposure to the rain, does it not?

A. It is according to the amount of rainfall, yes.

Q. How deep down in that car do you suppose during this period of six weeks, with one-half an inch of rain distributed over that period, do you think it sank into the mass of coal?

A. I have not the daily rainfall at hand, but as I have stated, unless the rainfall is sufficient at [1592—1529] any time to get down into the sample, the next day the sun will evaporate it off.

(By consent of counsel for the prosecution and by

(Testimony of E. E. Somermeier.)

permission of the Court, the witness Somermeier was here withdrawn from the stand so that President J. C. Branner, of Stanford University, might be at this time examined as a witness.)

[Testimony of J. C. Branner, for Defendants.]

J. C. BRANNER, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. OLNEY.

I reside now and have resided for 23 years at Stanford University. I am President of the University and Professor of Geology. I am by profession a geologist and have followed that profession since 1874. I have had experience with coal and have made a study of the subject of coal. I was Assistant Geologist on the Brazilian Geological Survey in South America for a number of years. For two years I was on the Anthracite Coal Survey of Pennsylvania and for seven or eight years I was State Geologist of Arkansas, having full charge of the work in the coal regions there.

Q. Doctor, does coal vary in weight at different times and under different conditions, that is, take the same lot of coal, will it vary from time to time in weight depending upon the condition under which it finds itself, or to which it is exposed?

A. Yes, sir, it varies somewhat according to [1593—1530] circumstances. Of course, as everyone knows, when coal is taken out of the mine, if it is wet, it weighs a certain amount, and that same coal, if it dries out, will lose moisture and become

(Testimony of J. C. Branner.)

lighter, or if you get moisture on it, it will be heavier; and it will vary in that respect, according to the condition of the coal, itself, that is, whether it is fine coal or coarse coal.

Q. That is, there is a difference between the extent to which this coal will vary in weight, because of addition or loss of moisture and the extent to which lump coal may vary in weight for the same reason?

A. Yes, sir; the lump coal does not vary so much in the moisture content of large bodies of it, as the fine coal; but if you take coal, for instance, in the anthracite regions of Pennsylvania, the coal is there crushed up, as everyone knows, and run through screens, and these screens separate out the coal into different sizes, and the screenings are usually thrown away there and heaped up in great piles called culm heaps, and those screenings contain a great deal more moisture than the coal of regular sizes, and larger lumps, and the finer those screenings are the more moisture they will hold. That is a well known fact, however, a fact everybody is acquainted with there.

Q. Would the same thing be true of bituminous coal, that is, as between screenings and lump coal?

A. Quite so, in fact, the bituminous coal is more friable than the anthracite coal is, and consequently what are known as the fines are usually broken up into finer fragments than those we have in the anthracite regions. [1594—1531]

Q. Is this difference in weight experienced in coal, or found in coal when it is handled in commercial quantities and in a commercial way, and in the course

(Testimony of J. C. Branner.)

of that handling is exposed to the weather?

A. Well, that is generally accepted in the coal business where I have had to do with it, in the matter of observation, it is accepted as a well-known fact that when the coal is wet it weighs more than when it is dry.

Q. Do coals from different mines, or coals from a different character vary as to what I may call the inherent moisture in them, that is, the amount of moisture that is found in them as they are in the mine?

A. Yes, they vary a great deal, that is, a great deal—I should say some of the coals, for instance, the Arkansas coals used to run less than one per cent of moisture, and from that they ran all the way up to over 40 per cent, although that 40 per cent was in what is commonly known as a lignite, but the bulk of the coals there in that state were what is known as low moisture coals, that is, coals that would contain from 4 per cent moisture down, and usually about 3 per cent.

Q. Doctor, take the case of a coal with a low moisture content, that is, an inherent moisture content of between 3 and 4 per cent, for instance, is there any rule as to how that coal will increase in weight, or decrease in weight, under normal weather conditions, if exposed to the weather?

A. Why, yes, the general rule is a matter of common information; [1595—1532] I presume it is known that if you leave the coal out in the wet, that is, coal that is the common run of coal that comes off the cars, screenings and all mixed up together, if you

(Testimony of J. C. Branner.)

let that coal get wet, why, of course, it will weigh a good deal more than it did before it was wet, when it was dry.

Q. After it is wet, Doctor, if you take the average run of coal, lump and screenings mixed, after it is wet, will it lose that moisture easily?

A. It depends a good deal upon how the coal is stored; for instance, we find in Pennsylvania, if you take the lump coal and store it by itself, in the early days when I went in the anthracite regions, they just got well into the business of breaking the coal and screening it. They found this, in regard to the storage of that coal, if you take coal and store it, what is known as egg coal, or nut coal, or lump coal, or any of the large sizes and store that in bins, where it is open to the weather, when the rain fell on that coal, it usually went through it very rapidly. But on screenings, the so-called culm heaps were a great bother, in a way, because in the winter time, they would be covered with snow, and rains were commonly heavy in the winter and in the early spring, and the moisture would fall on those great culm banks and saturate them with moisture, and little springs would actually come out around the bottom of them, there was so much of the moisture falling out of that coal; of course, in time, there was a layer over the surface that gave up its moisture and dried out, but the great mass of those culm heaps were found to be wet down to—well, I could not tell you what depth.

[1596—1533]

Q. Take the case, Doctor, of a pile of coal contain-

(Testimony of J. C. Branner.)

ing, say, 24 per cent or more of fine material, being built up to an average height, say, of ten feet, and exposed during the winter; we start with a low moisture coal, that is, a coal with a low moisture content when the pile is made; now, suppose that pile is built, as I say, in the beginning of winter, and that it stands during the winter and the following summer, for a year; at the end of that year, could you say whether it would lose or increase in weight?

Mr. ROCHE.—Do you mean a winter in San Francisco, or a winter back east?

Mr. OLNEY.—Yes, a winter in San Francisco.

A. May I ask whether you mean that coal is open and exposed to the weather, or is it under cover?

Q. Oh, yes, it is exposed to the weather, always?

A. I should think if it was raining, the weather would soak down into the veins, and those veins would retain their moisture for a long, long while; I would not undertake to say how long, to be sure.

Q. Do you think they would retain it for a month, or two months?

A. Well, I should think they would, yes.

Q. Doctor Branner, take the case of a firm importing into this port coals of moisture content of from 3 to 4 per cent, and with a percentage of fines equal to 25 per cent or upwards, and importing this coal by vessel, and under deck and protected from the weather, so that when the coals were unloaded here their moisture content was low, that is, it was 3 or 4 per cent, and suppose the coals, on being unloaded here, are stored in the open and exposed to the

(Testimony of J. C. Branner.)

weather while waiting sale for shorter or longer periods, [1597—1534] as the case may be, and suppose the firm follows this course of business during a course of years here in San Francisco, is it possible to say either that on the average and over a course of years the coal would increase in weight, or decrease in weight, or is it impossible to say what the result would be?

* * * * *

A. I should think it would be perfectly reasonable to suppose that the coal would weigh more after it had been wet than before.

MR. OLNEY.—Q. I am asking you, Doctor, if that would be true of a concern doing a commercial business in this manner, over a course of years?

A. Why, I should think so.

Cross-examination by MR. SULLIVAN.

I should think that coal containing moisture varying from 1.70 to 4.40 per cent would be considered low moisture coal. I do not think it is true that low moisture coal will absorb less moisture in a given time under the same conditions than high moisture coal. I should think that the low moisture coal would absorb more. The low moisture quality or the high moisture quality of coal is not due to any extent to the porosity of the coal. I cannot testify precisely as to the point of saturation in coals. I have no definite figures as to the point at which Nanaimo coal will cease to take up any more moisture. I never have examined Nanaimo, or Wellington or British Columbia coal, but I am acquainted with it as I have

(Testimony of J. C. Branner.)

seen it in the market. [1598—1535]

Q. Assume that a load of that coal comes here to San Francisco, in dry weather, and is exposed for, say, ten, twenty, or thirty days, in the absence of any rain, and assume that the moisture percentage varies from 2.53 to 4.44, would not that coal lose weight by reason of the exposure to the atmosphere?

A. I don't think so.

Q. In dry weather?

A. I don't think so. Excuse me, I mean if that moisture content that you refer to there is the moisture content as stated in an analysis, that moisture would not be lost.

Q. That moisture, itself, would not be lost?

A. No.

Q. But would the coal take on any additional moisture if it did not rain? A. I should not think so.

Q. You should not think so? A. No.

Q. You would think that in dry weather, in the absence of rain, the moisture content would not be altered at all? A. I should not expect it to.

Q. You should not expect it to? A. No, sir.

Q. Now, assume a case of this kind, Doctor, a cargo of 3,000 or 4,000 tons of this coal is brought from Nanaimo to San Francisco, in dry weather, in the summer-time, when the ordinary summer winds prevail, and there is no rainfall, and assume that when the coal comes here it is discharged into bunkers of the dealer in coal, and is during the prevalence of dry weather, within a very few days, transferred from the bunkers into barges, and within a few days,

(Testimony of J. C. Branner.)

say ten days, is transferred from barges into ships, for fuel purposes, no rain, mind you, in the meantime falling at all, in your opinion would that coal be affected in weight?

A. I should not think so. [1599—1536]

Q. In other words, you would think that the coal, when placed in the ship from the barge, would be equivalent in weight to the weight of the coal when transferred from the mine into the ship.

A. I should think so.

Q. To what extent, Doctor, do you suppose that cargo of coal, in rainy weather, would be affected by rain, assuming that we have, inside of 30 days a proportionate amount of rain that we have in the rainy season, and we have, I think, about 22½ inches in a year; and assume that the ordinary rainfall in the winter-time would occur, to what extent do you suppose the weight of that coal would be increased?

A. I would not undertake to say just how much.

Q. Well, it would be a to slight extent, do you think?

A. It would depend, you see, upon the amount of fines in that coal.

Q. Assume about 25 per cent of fines there. Now, assume these conditions, that is transferred from the mine to the ship at Nanaimo, the vessel after four days arrived in San Francisco, the coal is handled and transferred from the ship into bunkers, and within a few days after that is transferred from the bunkers onto a barge, and within ten days is transferred from the barge into the liner for fuel purposes,

(Testimony of J. C. Branner.)

all of the handling occurring, say, within the period of thirty days, in the winter-time, and assume, further, that there are about 25 per cent of fines in the coal; now, taking into consideration the character of the weather we have in San Francisco, the ordinary weather in the winter-time, where we have sunshine one day and rain the next day, would you say that the increase in weight would [1600—1537] exceed $\frac{1}{2}$ of 1 per cent under those circumstances?

A. I should say it would be decidedly more than that.

Q. To what extent would you say, Doctor?

A. I would not like to say the percentage, because that is a matter for actual determination. If somebody told me that that increased two, three, or four per cent, I should consent to it, and would be interested to know what the facts were.

Q. And if somebody told you it did not increase any more than $\frac{1}{2}$ of 1 per cent, you would not consider it impossible, would you, depending altogether upon the quantity of rain that fell on the coal?

A. It would depend on that, and the handling that the coal had, and the opportunities for water and evaporation, and so on, and the fineness of the screenings mixed up with the coal.

Q. And if, in the meantime, during the period of 30 days, there was, say, for half the time the sun shining brightly and no rain falling, would you not consider that the effect of the sun and the atmosphere on the coal would tend, in a great measure, to remove a great deal of the moisture?

(Testimony of J. C. Branner.)

A. It would remove the moisture decidedly, yes.

Q. The moisture in coal of that kind is merely a mechanical mixture, is it not, it is not a chemical mixture? A. Yes, it is mechanical.

Q. And if coal was allowed to rest in the pile for any length of time, by degrees the water will seep to the bottom, will it not?

A. Not altogether. The capillary attraction holds it among the fines, and it won't run out from the fines alone.

Q. But in a very short time it leaves the lumps, [1601—1538] except by being attached by reason of the fines surrounding the lumps, does it not?

A. Yes.

Q. Mr. Olney put to you a hypothetical question, assuming that there was a pile in the yard of the defendant, 10 feet high, containing about 25 per cent of fines, and the rain fell upon that pile, that is, the rain that we ordinarily have in San Francisco. Would not that coal lose this moisture within a period of 60 days, if the sun shone and we had no additional rain?

A. I would not like to express an opinion about a thing of that kind.

Q. Well, do you think, Doctor, it would lose this additional moisture say within a period of two or three months, if during those two or three months we had no rain at all?

A. I don't know even about that.

Q. But you are sure, are you not, Doctor, that it would lose a considerable amount of that moisture?

(Testimony of J. C. Branner.)

A. Oh, yes, the moisture evaporates away from the surface, and that evaporation continues down to a certain depth. And I have seen coal that is stored in some such fashion as that, but I would not undertake to say just the depth, and had been lying for months, and the fine coal in the bottom of it perfectly wet after it had been lying there for months.

Q. That would be away down at the bottom of the heap, that it was perfectly wet, would it not?

A. Towards the bottom, yes; just how thick the dried out portion over the surface is, I have not paid any particular attention to.

Q. You refer to a pile of screenings, don't you, in that answer of yours?

A. No; where you have coal unloaded from barges or coal cars, you know the tendency is for the lumps to all run away and to collect around the bottom, [1602—1539] and the screenings will keep heaping up and from the mass of the cone, so that when that begins to dry out, it will dry in a thin layer all around the surface, but the mass of that is protected somehow or other by the overlying screenings and will retain the moisture for a long period of time; at least, that is my observation of it.

Most of my observation of coal has been in eastern states where it rains and snows considerably at times, and where the snow would remain upon the coal for months at a time.

Q. Now, assume that a cargo of coal was placed upon a ship at Nanaimo and transported to San Francisco and the coal is four days in transit to this

(Testimony of J. C. Branner.)

port, and assume that the hatches of the vessel are closed in transit, in your opinion would there be any appreciable diminution of the weight of that coal during that period of time?

A. I should not think so.

Q. And, in your opinion, would there be any appreciable increase in the weight of that coal during that period of time? A. Not if it is kept dry.

Q. The oxidation during that period of time would be practically nil, would it not?

A. It would amount to but very little, indeed.

Q. It would be negligible, would it not?

A. I think so.

Q. Suppose that character of coal came here to San Francisco and was transferred from a ship to a bunker and from the bunker to a barge, and from the barge to another ship, for fuel purposes, in dry weather, the entire period of time from the date of shipment to the [1603—1540] date of discharge into the liner being about 30 days, the oxidation during that period of time would be practically nil, would it not? A. I should think so.

Q. It would amount to nothing; and assume, Doctor, that a pile of coal containing 32,000 tons were exposed to atmospheric influences for about 60 or 90 days, in dry weather in San Francisco, here, wouldn't the oxidation of that coal be practically nil?

A. I think that would be a negligible quantity.

Q. By that you mean practically nothing, do you not, Doctor? A. I do, yes.

Q. There would be practically no change in the

(Testimony of J. C. Branner.)

weight by reason of oxidation of the coal?

A. You appeal to me there as a geologist, and when we deal with periods there, there is some difficulty in understanding each other. I should say practically that the oxidation of coal, while we know that it goes on to a very considerable extent, it takes such long periods of time for it to oxidize, I should think that in commercial transactions, it is a negligible quantity.

Q. So that in commercial transactions, you would consider the oxidation to be nearly negligible. Now, assume, Doctor, that the coal is in storage 6 days, in dry weather, in your opinion the oxidation during that period of time would be practically nil, would it not? A. I think so.

Q. And wouldn't it be so little that it wouldn't be worth consideration at all, by any chemist or analyst—6 days?

A. Well, there are certain changes going about in coal, sometimes, where it has a good deal of iron pyrites in it,—that some people might insist upon as having more or [1604—1541] less importance, but I have never been disposed to regard it as of any particular importance.

Q. Assume, Doctor, that in this coal, there, the sulphur in the coal varies in extent from a fraction of 1 per cent to 1.27 per cent, would not that amount of sulphur in the coal be of such a slight quantity that the oxidation would be practically nil for any period of time?

A. Well, I should not say for any period of time.

(Testimony of J. C. Branner.)

Q. Well, say for that month?

A. I don't think it would be of any particular importance.

Q. Or for 6 months; don't you think the oxidation for a period of 6 months would be practically nil?

A. It would be very little.

Q. And in 2 months you think that the amount of oxidation would not be apparent, don't you?

A. Well, it might be apparent.

Q. I mean in so far as increase of weight is concerned.

A. Commercially, I should not think it would be important.

Q. Is it not true that the cause of oxidation generally is the amount of sulphur in combination, or free in the coal? What causes oxidation, in your opinion, Doctor?

A. It is absorption of oxygen from the atmosphere, but that takes place under a great many different conditions. We have oxidation in coal, and oxidation in other kinds of minerals; it depends on what they are.

Q. Oxidation is nothing more or less than a very slow combustion of the coal, itself, by reason of the combination of [1605—1542] oxygen with the substance of the coal, or with the sulphur of the coal?

A. The atmosphere, yes.

Q. Is the oxidation caused by free oxygen, or is it caused by the oxygen contained in chemical combination with water, or both?

A. Well, I don't know that I can explain exactly

(Testimony of J. C. Branner.)

the processes of oxidation. We generally speak of it in general terms as decomposition, when we speak of it in connection with coal that is exposed naturally. For instance, coal that has been exposed in that way, it is spoken of in Pennsylvania—let me see what they call it—coal blossom; it is simply a black, sooty coal where the coal has been entirely decomposed, disintegrated.

Q. Does it make any difference in the degree of oxidation in the coal, say coal of the quality of this Wellington coal, whether it is exposed to water, or not, to rain, say, within a period of say 30 or 60 days?

A. I don't know how far the water from the rain has influence on that sort of thing, but I remember we used to be troubled sometimes in Pennsylvania, and in other parts of the country where I have been acquainted with coal mining, with spontaneous combustion in the coal, the coal would catch fire, and usually it has been attributed to the presence of sulphur in the iron pyrites, that is very often found in the slates that accompany the coal.

Q. When coal is analyzed and the analyst finds a certain amount of sulphur, say 1.9 per cent of sulphur in the coal, by that he means to say that he discovers that sulphur in combination with iron, or some other mineral?

* * * * *

A. That is true. [1606—1543]

Mr. SULLIVAN.—Q. Now, assume, Doctor, that the pile of coal referred to in Mr. Olney's question was not constant, but was being moved, changed

(Testimony of J. C. Branner.)

every thirty or sixty days, wouldn't the amount of oxidation in that pile of coal be also nil?

A. I think so.

Q. And would not the amount of loss, or the amount of increase, would not the amount of increase in weight in dry weather be practically nil?

A. Increase in dry weather—

Q. Yes, the increase in weight by reason of moisture, in dry weather. A. Yes.

Q. Is it not a fact, also, Doctor, that if this pile of coal were kept moving completely every thirty or sixty days, in ordinary winter weather, like we have here in San Francisco, would not the increase by the oxidation in that pile of coal be practically nil?

A. I think so.

Q. And don't you think, also, Doctor, that the increase in weight by reason of moisture in this pile would be comparatively slight, where it is kept moving and completely moved in 30 or 60 days?

A. Of course, if the coal were handled, shoveled, or anything of that kind, so that the atmosphere could get at it, the moisture would soon disappear out of it.

Q. If this pile of coal is sold to the wholesale dealers, retail dealers, sold to the trade, sold to ships, and is transferred from place to place by means of shovels into buckets, and by means of buckets into bunkers, and by means of chutes from the bunkers into the barges, and by means of buckets from the barges into ships, [1607—1544] and by means of shovels from yards into wagons, and so forth, continual motion affecting this pile of coal to the extent that the origi-

(Testimony of J. C. Branner.)

nal pile disappears say in 30 or 60 days at most, now, under those circumstances, would not the increase of weight or moisture in the ordinary winter weather in San Francisco be very slight indeed?

A. Well, I am sure I would not know exactly how to answer that question, any farther than to say that, of course, the stirring and handling of coal gives the moisture an opportunity to escape.

Q. And, in your opinion, it would escape; is that not so?

A. At every opportunity it had, it certainly would.

Redirect Examination by Mr. OLNEY.

Mr. OLNEY.—Q. Doctor, when you say the moisture would escape, you mean that some of it would escape? A. I do; yes.

Q. Coming to the very question that was asked of you by Mr. Sullivan, speaking of a cargo coming in here in wet weather, composed of 25 per cent or upwards of fines, and being rained on after it was delivered here, and presumably while it was in the storage bin, in the bunker, which is exposed to the air, exposed to the heavens, or in a pile and getting wet in that way, during the period of 15 days—half a month—and then remaining there exposed to the sun for 15 days longer, now, in response to a question by Mr. Sullivan you said that under those circumstances it would lose moisture; to what extent would a pile of [1608—1545] coal made up of fines in that way, and wet, lose moisture in the course of 15 days, even though exposed to a hot sun?

Mr. ROCHE.—Made up of fines?

(Testimony of J. C. Branner.)

Mr. OLNEY.—(Continuing.) Made up of fines to the extent of 25 per cent; and take the case, Doctor, of a pile of coal made as they usually make piles, by taking it from a height, so that the lump coal spreads around the edges of the pile and the fine coal is in the middle and runs up, take a pile of that sort, such as you find in ordinary commercial uses, 25 per cent of fines, and the balance wet, and suppose it is wet for half a month, and then it is dry for 15 days and it is exposed to the sun, the hot sun, is it going to lose any substantial portion of its moisture in those 15 days?

A. I should not be able to answer that question in any way that would be satisfactory to myself. From my observation of the packing of coal, you can get an idea of some of the things that happen in a coal heap, if you imagine a couple of pieces of glass with a drop of water put in between them and press those two pieces of glass right down together; now, the atmosphere cannot get at that glass except through the margins, right in between, and the crack in there is very small; if that drop of water has a little mineral matter in it, it very frequently happens that the drying out of that water around the margins there, where the air cannot get it, will practically seal—shut out the atmosphere, so that the moisture cannot entirely disappear at all, so that you can leave those two pieces of glass there for days at a time, or months, and still that water will never entirely evaporate; now, the same thing happens between two small fragments of coal, or anything of that kind, and that you have packed down together; you take those two [1609—

(Testimony of J. C. Branner.)

1546] faces that are smooth and press them up against each other, with water in between, and where the water begins to dry out, wherever the air can get at it through loose material, the water will disappear; how deep, though, depends on circumstances, the blowing of wind makes a good deal of difference; those two pieces will stick together and keep that moisture in there almost indefinitely, under favorable circumstances, of course, you understand; but to say how long it would take water to dry out of a pile of fine coal, I would not want to say, I don't know.

Q. I don't want to ask you, Doctor, how long it would take to dry it out, but I was wondering if you could give us an idea if it would dry out substantially through or only in the lower levels, leaving the lower levels wet, say in 15 days. Take a pile of coal say 10 feet high on an average, and it is wet, thoroughly wet, when it comes in there, it has a proportion of fines in it of 2 per cent, and the fines are in the center, as it were, with the lump coal around the edges; take that pile 10 feet high and expose it for 15 days to a real hot sun, say a sun such as we sometimes have here, with our north winds, would you think, for instance, that coal would dry out to a depth of more than a foot from the surface in those 15 days? [1610—1547]

A. Well, I should say it would depend entirely on the character of the top layers of that coal. If you had fine coal at the surface, then it would dry out more slowly. That is about all I can say. If it is larger lumps, it would dry out more rapidly.

Mr. OLNEY.—Q. And you would not want to say,

(Testimony of J. C. Branner.)

taking it, for instance, where the top of the pile is very largely made up of fines, you would not want to say that even in that case it would dry out in the period of 15 days only to a foot, or more or less, you would not have any idea of that?

A. I would not want to say.

Q. Doctor, is the process of oxidation always a process by which the weight is increased, provided it does not reach the point of ignition; take it at normal temperatures?

A. No, oxidation does not always increase the weight of coal.

Q. I should have confined my question, really, to the oxidation of coal, and oxidation particularly of the sulphur in the coal; is that process one that involves an addition in weight when going on at normal temperatures?

A. Of course it depends upon what minerals are formed. You take some minerals that are formed that way, they increase in weight, they take up water and hold onto that water.

Q. I am speaking of coal, Doctor, the oxidation of coal.

A. When the oxidation of coal takes place, sometimes these minerals are formed in the process.
[1611—1548]

Q. What I wanted to get at was, if oxidation is going on, if the process is going on, is there an increase in weight going on at the same time; in other words, does that process, so far as the oxidation goes on, involve an increase of weight?

(Testimony of J. C. Branner.)

A. Yes, in the oxidation of coal, it increases the weight of it. The point that I want to make, and that I hope to express in connection with the subject of oxidation is, that although that process is a process in common oxidation as it takes place in the open. it is so low that in a case of this kind it is a thing that it seems to me might be neglected.

Q. It is a process, however, is it not, Doctor, that the rapidity of it increases decidedly with an increase in temperature? A. Yes.

Recross-examination by Mr. SULLIVAN.

I was, as I have said, at the head of the Geological Department of Arkansas for seven or eight years. I had charge in that capacity of the whole coal-field in the state, and became familiar with storages of coal deposits—30,000 or 40,000 tons in a pile. As State Geologist, I had occasion to inquire into the conditions that caused deterioration of coal and its heating powers, etc. In Pennsylvania, as assistant in the Pennsylvania Survey, we were studying the anthracite. I have observed the changes in coal stored for periods, say, of a year.

Q. You never saw any changes in the weight or increase in the weight of coal by reason of oxidation [1612—1549] which went on for a period of a year, in a pile of coal, did you, Doctor?

A. Yes, sir, I have seen some oxidation go on that way, but I never paid any particular attention to it, because I was never impressed by it, I never considered it of importance.

Q. Didn't you always, in dealing with the question

(Testimony of J. C. Branner.)

of the change in the condition of coal, consider the effect of oxidation, as affecting the weight of the coal, as practically of no importance?

A. That is the way I looked at it.

Q. As always being a mere negligible quantity to be considered? A. Yes.

Redirect Examination by Mr. OLNEY.

Mr. OLNEY.—Q. Doctor, has this subject of the oxidation of coal been investigated particularly in the last few years, for instance, has the Bureau of Mines of the United States made a particular study into this subject?

A. I don't recall any particular study of that subject. I think that Professor Rogers, down at Stanford University, made some experiments on oxidation of certain forms of pyrites, and that might help out in a question of this kind. * * * Whether the United States Survey, or the Bureau of Mines, have carried on any investigation of that kind, also I could not tell you. They have published very extensive series of coal analyses in one of the bulletins of the Bureau of Mines, which, perhaps, contains the largest number of coal analyses to be found anywhere in the country, but I do not think they went into that phase of the question. [1613—1550]

[Testimony of E. E. Somermeier, for Defendants
(Recalled—Cross-examination).]

E. E. SOMERMEIER, on the resumption of his cross-examination by Mr. Sullivan, testified as follows:

Sample Number 1, which was taken from the car-

(Testimony of E. E. Somermeier.)

load of coal in the shed, had been in that enclosed shed about six weeks, and was, of course, free from rainfall. The shed had plenty of ventilation.

(It was here explained that Sample Number 1 was in the shed, Sample Number 2 in the open, and that Numbers 3 and 4 came from the mine.)

I should say that the usual increase by oxidation in the weight of the Nanaimo coal, situated as was that coal for that period of time, would be 3/10 to 5/10 per cent. There would not be any absorption of moisture from the surrounding atmosphere where the coal came directly from the mine as when the humidity was almost up to the point of saturation. Sample Number 1 showed a moisture content of 2.75% according to the Pittsburgh method, and 2.33% according to the Washington method. There was a decrease in the moisture content of that coal as compared with the mine sample, the decrease being approximately 2/10 of a per cent. There was also a decrease in weight during those six weeks so far as the moisture is concerned. In answer to the question whether I made any analyses for the purpose of showing the net increase or net decrease in weight of that sample, I would say that it would be impossible to make that determination. In order to do so, I would have to be there at the time the car was put in and then at the end, too, and weigh the car at the beginning and at the end. In answer to the question whether I cannot make an analysis for the purpose of determining the increase or decrease resulting from the oxidation. I would reply

(Testimony of E. E. Somermeier.)

that I could make that analysis, but I could not tell what relation that would bear to the coal back [1614—1551] in the mine. Sample Number 3, namely, the mine sample, showed, according to the Washington method, a moisture content of 2.53%, and according to the Pittsburgh method, of 2.97%, the difference being 4/10 of a per cent. Sample Number 4 showed a moisture content by the Pittsburgh method of 2.92, and by the Washington method of 2.61. If we are going to compare samples against samples, however, we should take the same method. Sample Number 5 was the slack taken from the top of a car on the track exposed to the weather, presumably for about 6 weeks. It had rained during those 6 weeks. The moisture content, of that coal, according to the Pittsburgh method, was 2.20, and according to the Washington method, 1.74.

Q. Now, then, according to that analysis, after having been exposed in the open air for six weeks, and having suffered from a rainfall of $\frac{1}{2}$ an inch, the moisture content of that sample was 0.77 of one per cent, was it not? A. Yes, sir.

Q. That is, less; that is, notwithstanding the fact that this slack coal taken from the top of a car, having been exposed to the elements for six weeks, and $\frac{1}{2}$ an inch of rain there was less moisture in the coal that you analyzed taken as you say than there was in the coal as taken from the mine?

A. Yes; I knew that before I analyzed it.

(Testimony of E. E. Somermeier.)

Q. A difference of 77 one-hundredths of one per cent? A. Yes.

Q. Wasn't there also a corresponding decrease in the weight of that coal?

A. That particular skim on top, [1615—1552] certainly, but that is what I took that sample for, to see what the extreme air drying was; the bulk of the car underneath was entirely a different proposition and would be presumably something like my sample No. 2.

Sample Number 1 was lump coal, showing 2.33% moisture content, according to Washington method and 2.75½ according to Pittsburgh method.

Q. And it weighed less than—that lump coal contained less moisture than the sample taken from the mine itself. A. Yes, that's all right.

Q. How much less?

A. About 0.25%, between 0.25 and 0.2.

Q. Did not that coal also, notwithstanding the exposure to the elements for six weeks, weigh less than the sample taken from the mine?

A. It weighed less, as far as that moisture goes, but as I told you before, there was probably 3-tenths or 4-tenths or 5-tenths of one per cent exposed, which would increase it, so if you want my opinion on what the weight of that car was at the time I had taken the sample compared with what it was at the time it came out of the mine, I would say it was perhaps 0.25 increase.

I did not make any direct determinations of the increase or decrease in the weight of coal resulting

(Testimony of E. E. Somermeier.)

from oxidation. That was left to Professor Folsom. [1616—1553]

Q. Now, not having made any examination or investigation for the purpose of determining the increase in weight resulting from oxidation, how are you able to make an estimate now or give your opinion as to the increase in weight of all of these coals possessed by the Western Fuel Company resulting from oxidation?

A. Mr. Sullivan, I have analyzed and tested coals from all over the United States, and I don't imagine that this coal up in British Columbia is one coal out of a thousand; and they all show increases that have ever been tested.

* * * * *

Q. Did you not know, at the time you were employed by the defense in this case, that it was important for the defense to establish the increase in weight, if the increase occurred, in the coal that was imported into San Francisco and transferred from the barges of the Western Fuel Company into the ships of the Pacific Mail Steamship Company?

A. I was familiar with the points in controversy, yes.

Q. And didn't you understand that that was one of the principal points in controversy?

A. In increase in weight?

Q. To establish a legitimate increase in weight in the coal that was sold by the Western Fuel Company to the Pacific Mail Steamship Company?

A. No, sir; I was under the understanding it was

(Testimony of E. E. Somermeier.)

as to whether that increase could be accounted for by natural causes; legitimate did not have anything to do with it. [1617—1554]

Q. You *include among* the natural causes of oxidation, do you not? A. Yes, sir.

Q. Why, then, if you understood that that was one of the questions involved in this defense here why, then, did you not make an analysis or an investigation for the purpose of determining the increase in weight, if any given quantity of this particular coal resulting from oxidation within a given period of time?

A. Because I was under the impression that this trial was set for October, and I didn't have sufficient time at my command to make an exhaustive test.

Q. You couldn't make a test between August and October.

A. I didn't get back to Columbus until the 13th of September.

Q. And you understood the case was set for trial in October? A. Yes.

Q. Don't you know that you have testified here to a certain percentage of increase in weight by oxidation within the period of a few days?

A. Well, sir, I have told you also that that oxidation experiment was left to Professor Folsom.

Q. Don't you know, according to your theory, that you can tell the extent of oxidation and the increase in the weight of coal resulting from oxidation within the period of six days or ten days after the coal is taken from the mine?

(Testimony of E. E. Somermeier.)

A. Why, you can get a figure by that time, certainly.

Q. Why, then did you not, for the purpose of [1618—1555] fortifying your testimony here, get a few sacks of coal and expose it to the elements for 10 days or 20 days or 30 days and come into court and testify here to the result of your examination after the expiration of 30 days for the purpose of showing that the quantity of coal increased in weight by reason of oxidation?

A. As I say, that test was turned over to Professor Folsom because he was here on the grounds. I am giving my opinion based on tests that cover a number of years and a great number of coals.

Q. How long have you been in San Francisco during this last visit here?

A. About two months, I think.

Q. About two months? A. It seems that long.

Q. Why didn't you, two months ago, take a ton of coal, more or less, and store it away somewhere, determine its weight to a nicety when it was stored away and then after the expiration of a month ascertain its weight for the purpose of explaining to this jury the increase in weight of that particular ton of coal resulting from oxidation?

A. Mr. Sullivan, such a test as that requires a well-equipped laboratory, and I was under the impression that I would probably be called here to testify in the course of 10 days.

Q. Do you remember seeing Mr. Tidwell and myself down at the bunkers one day when you were

(Testimony of E. E. Somermeier.)

there with Professor Parr?

A. I remember seeing some gentlemen down there; I didn't recognize you at the time, but I was told afterward it was Mr. Sullivan and Mr. Tidwell.

Q. That was about 2½ months ago, was it not?

A. Yes, sir.

Q. Why, at that time, when you were making an [1619—1556] investigation, and you noticed counsel for the Government making an investigation, why didn't you direct a certain amount of coal to be set aside and say, "Now, we will catch those fellows; we will show them that 10 tons or 100 tons of coal will increase in weight by reason of oxidation during 30 or 60 days"?

A. Because, as I told you, I expected I was going to be called every day for the last weeks, and there has been a series of oxidation tests carried on down at Stanford University and I would like to refer to the tables, if they were in evidence at this time.

Mr. OLNEY.—We have done that very thing, Mr. Sullivan, and we will furnish you with that information.

(Witness Continuing.) I suppose I could have had access to the laboratories of Stanford University and of the University of California.

I made a preliminary report here in San Francisco to counsel for the defendants, but that did not include any results on these samples of coal from Nanaimo and San Francisco because I had not analyzed them.

(Testimony of E. E. Somermeier.)

(Said preliminary report or letter was here handed by counsel for the defendants to Mr. Sullivan.)

This letter was written by me and this is my signature. A copy of the preliminary report of September 5th, referred to therein, is in the hands of counsel for the defendants.

(Said copy of said preliminary report of September 5th was here handed by counsel for the defendants to Mr. Sullivan.)

The signature attached to this report is my signature.

(Said report of September 5th was here introduced in evidence by the United States and reads as follows:) [1620—1557]

[U. S. Exhibit No. 163—Letter Dated San Francisco, September 5, 1913, E. E. Somermeier to McCutchen, Olney & Willard.]

“San Francisco, September 5, 1913.

McCutchen, Olney & Willard,

Dear Sirs: I submit herewith preliminary report on work and conditions at Nanaimo, B. C., and here at San Francisco. As you are aware, a strike is on at Nanaimo and as a result I was not able to secure any samples that would represent cargo shipments. However, both Professor Parr and myself secured two mine samples, one from each of the seams worked at Nanaimo, and also several samples from coal stored in cars in the yards.

“From data at hand and from the general appearance of the coal, it probably does not run as mined

(Testimony of E. E. Somermeier.)

over three per cent moisture. The coal as it comes from the mine is screened over a two and one-half inch screen and the over size run into five-ton cars. These cars, as a rule, are weighed the same day as mined and are then unloaded into a ship within three hours from the time of weighing. However, occasionally they stand over night, and possibly for a day or two, before being sent to the ship, and, according to Mr. Counely, the wharfmaster, the time between weighings and the time of being unloaded will average about five hours. The moisture in the coal in the mine is in equilibrium with air, having a humidity of about ninety per cent or over. During the greater part of the year, the dry season, as soon as mined the coal comes into air having a humidity of thirty-five to eighty per cent, and as a result it tends to lose moisture, the loss probably on an average being less than two, to three-tenths of one per cent. During loading, in dry weather, a small garden hose is occasionally used to wet down the coal during a portion of the time of loading, and, according to Mr. Counely, [1621—1558] it is used perhaps as much as ten hours in loading a five thousand ton cargo. The amount of moisture added to this way will probably not exceed five one-hundredths of one per cent. The net results of these gains and losses is that the coal loaded into the ship contains, perhaps, two-tenths per cent less moisture than the coal as mined.

“On voyage to San Francisco during the dry months there is probably a small additional loss, ap-

(Testimony of E. E. Somermeier.)

parently, however, not a very considerable one.

“At Northfield, on Departure Bay, the coal is protected from rainfall at all times so that conditions for moisture losses are somewhat more favorable at this point of shipment than at Nanaimo.

“In going over the yards at Nanaimo the method of shipment of the coal and method of weighing were noted particularly. The coal is weighed on a scale having a capacity of one hundred tons, the amount of coal weighed at one time being approximately five tons. Weighings are made very rapidly and only to the nearest hundred-weight. In talking with the men who did the weighing, they claimed to weigh with the beam at the center. However, with the rapid weighing that is necessary, it seems probable to me that their weight to the nearest hundred-weight would practically always be somewhat heavy and that in practice they would weigh to a falling beam. An error of one hundred pounds on five tons weighed, amounts to one per cent, and, while the errors may not all be in one direction, I think that they are cumulative toward the side of weighing too heavy. My opinions on the weighing, however, are in no sense to be taken as expert opinion, but general observations based on some familiarity with weighings as they are conducted in laboratory practice. [1622—1559]

“In regard to the work at San Francisco, in so far as sampling coal is concerned the situation is worse than at Nanaimo. No Nanaimo coal is available and the only samples that Professor Parr and myself

(Testimony of E. E. Somermeier.)

secured were samples of Australian and Japanese coal, taken from the bunkers at the Folsom Street dock. These samples cannot, of course, compare in importance to samples taken from cargo shipments of Nanaimo coal if such were obtainable. However, the results that may be obtained from them will serve as a supplement to the work carried on by Professor Folsom.

“On the assumption that the coal from Nanaimo usually arrives in San Francisco with a moisture content of approximately two and one-half per cent, the probable moisture losses during the summer months are not over 25/100 of one per cent, as the drying out is confined largely to the surface of the piles of stored coal. This coal, if thoroughly air dried, probably will not lose over one per cent of moisture, so that the assumption of 25/100 of one per cent as the loss for the entire pile is probably too high. During the wet months the moisture gained due to rainfall might run up to five or six per cent, or more. On the assumption that the coal is held in storage for an average period of three to four months, the amount of rainfall at San Francisco, twenty-two inches, is sufficient to increase the moisture in the coal three or four per cent. However, this assumption of an average storage period of three to four months means that fifty to seventy-five thousand tons of coal are kept on hand. The bunkers which I visited held less than ten thousand tons, so that if calculations as to effect of rainfall on

(Testimony of E. E. Somermeier.)

the coal, based on a storage period of three to [1623—1560] four months, are to be used, the facts should be verified as to whether there is storage capacity for fifty to seventy-five thousand tons of coal and as to whether such has actually been on hand.

“In regard to the Government analyses on samples of coal sold to it, in my opinion the results from moisture are of little value to you in so far as establishing the moisture content of the coal at that time, as these results are certainly too low. This fact is admitted in Government Bulletin 63, page 8.

“Professor Parr and myself visited the Presidio and talked with the Assistant Quartermaster, who had charge of coal deliveries there. Their method of sampling will, undoubtedly, give low results from moisture. Furthermore, these samples are all analyzed at Washington, and the results for moisture upon such samples obtained at Washington, are lower than results obtained at Pittsburg, where the mine samples were analyzed. The difference in results between the two laboratories is about four-tenths per cent, as shown by comparison of results given in Bulletin 63, page 27.

“In regard to the increase in weight due to the oxidation of coal and to the formation of sulphate, these values can be approximated from data on other coals, but we have no data on the particular coals in question. The oxidation of coal in the time held in storage here is probably less than three-tenths of a per cent, which would correspond to less than three-tenths per cent increase in weight due to this cause.

(Testimony of E. E. Somermeier.)

The oxidation of sulphur to sulphate during storage here is probably between five-hundredths and two-tenths of a per cent, which would correspond to an increase in weight of the coal from three-tenths to one and two-tenths per cent. [1624—1561] The loss in weight due to escape of volatile gases while the coal is in storage is very probably less than five-hundredths of one per cent, or a result practically negligible.

“With this low moisture coal, and with the humidity and rainfall of San Francisco, the changes in weight are practically all increases. The increase due to rainfall may well be as high as three per cent, that due to oxidation of the coal itself up to three-tenths per cent, and that due to oxidation of sulphur to sulphate from three-tenths to one and two-tenths per cent, and that the total result is over three per cent is not at all surprising.

“The Government tests on carload lots of low moisture coals in many instances show increases in moisture of the car sample over the moisture in the mine sample of from one to three per cent, as shown by the following results from Bulletin 362 and Professional paper 48 of the S. S. G. S.

(Testimony of E. E. Somermeier.)

No. Sample.	Moisture in Mine Samples.	Moisture in Car Samples.
Jamestown 9	2.40-2.40	3.00-3.90
“ 11	1.80-1.80	1.50-3.60
“ 13	2.80-2.10	2.80-3.10 4.00
Alabama 1	1.22-1.35	2.34
“ 2	2.25-2.42	3.36
Arkansas 1	1.02-0.75	3.24
“ 2	0.95-0.78	2.23
“ 3	1.60-1.63	2.19
“ 5	1.38-1.80	2.36
Indian Ty. 2	1.46-1.30	4.45
“ 3	2.97-2.93	4.61
[1625-1562]		
Kansas 1	2.91-3.50	4.99
“ 2	2.44-2.36	4.18
“ 3	2.01-2.54	2.50
Kentucky 1	2.91-2.85	3.10
“ 4	4.61-4.76	5.27
Missouri 1	4.80-4.92	8.33
West Va. 1	1.40-1.35	1.75
“ 7	2.48-2.12	3.94
“ 8	1.90-1.84	4.16
“ 9	1.98-1.77	4.08
“ 11	2.21-3.05	4.07

“These car shipments were shipments to the World’s Fair at St. Louis and to the Jamestown Exposition and were during the late summer and fall, or during the dry season of the year.

“As to the capacity of coal to hold moisture mechanically, in Professional Paper 48, page 253, the

(Testimony of E. E. Somermeier.)

results upon West Virginia No. 5 coal, which coal is fairly comparable to the coal brought in from Nanaimo, show moisture in the mine samples three per cent on washed coal at 11¼" size 4.84 per cent on fine slack 19.5 per cent. Other results on washed coal given in Professional Paper 48, show similar increases. The assumption of a possible increase of weight of three-tenths per cent, due to oxidation of the coal, is, in my opinion, very conservative, as, while data on this particular question is not very complete, it is a well-known fact that many coals take up large amounts of oxygen. This has been investigated by White and Porter and Chamberlain and the results appear in Government publications. Some of the published results on Wyoming coals show an apparent absorption [1626—1563] and increase of weight up to twenty per cent. This increase, however, is a result of many years of weathering, and no such results are to be obtained or expected in short intervals of time. However, the results obtained by Porter in the laboratory indicate that increases of three or four-tenths per cent are not unusual.

"Upon the completion of the tests upon the samples taken here at San Francisco and at Nanaimo, and upon a further study of Professor Folsom's results, I will be able to make a more complete and specific report. In my final report I shall also refer you to the specific results and conclusions of Messrs. Porter, White, Chamberlain, and others, on the oxidation of the coal material itself and the oxidation of sulphur and sulphate. I submit this report merely

(Testimony of E. E. Somermeier.)

as a preliminary in order to give you an opportunity to familiarize yourselves with my general opinions and conclusions up to date.

“Very respectfully yours,

“E. E. SOMERMEIER.”

(Said document was here marked U. S. Exhibit 163.)

I refer in that report to Government tests. It is not true that the Government always makes its tests at the point of delivery or consumption. It is the sampling that is made at the point of consumption. The samples are then sent back to the laboratory at Washington, D. C., in four-pound cans, sealed and air-tight. The Government has been buying coal in San Francisco for a long time. I do not know whether they have been buying Western Fuel Company. These samples were analyzed in the Government laboratory. The analysis is supposed to determine the amount of moisture content in the samples. [1627—1564]

I say “supposed” because my opinion is that the Government analyses are all too low. The Government I know buys its coal with reference to the amount of heat units that is in it. The question of moisture is very important by reason of that fact. I do know of Government reports made where there was an analysis for the purpose of determining the increase in the weight of coal resulting from oxidation. I have made some of those tests myself at St. Louis, Missouri. The specifications of the Government in their coal contracts do not call for the change

(Testimony of E. E. Somermeier.)

resulting from oxidation because that is not necessary, the sample being sent immediately to the Government laboratory and analyzed as quickly as possible. Oxidation affects the heat value of coal. There is not any oxidation after the sample is taken. The Government is not interested in the oxidation that takes place before it purchases the coal. The Government is not concerned with what oxidation may have occurred between the mine and the time of purchase by the Government. I know that the Government has had coal stored at Panama, and now that you recall that incident to my mind, I remember that Mr. Porter has made an extended series of experiments of Panama coals for the determination of the loss of heat value resulting from oxidation. Mr. Porter has been making experiments for several years to determine the deterioration of coal in storage. I do not know that none of the coal purchased by the Government within the last year has been analyzed with the purpose in view of determining the amount of oxidation that will take place in that coal in any given time. On the contrary, Mr. Porter has published several reports of his work in this connection. I refer you to Porter & Ovitz, Technical Paper No. 2, United States Bureau of Mines, page 10; also Porter, Chemical Engineer, July, 1913, page 10. I do not have the [1628—1565] former, but I have the latter article here and will give it to you now.

I went to the Presidio during the course of my investigation. I did not get a table there from the Presidio officials showing the results of tests of coal

(Testimony of E. E. Somermeier.)

purchased by the Government. All I went out for was to find out their methods of taking samples. I did not investigate the result of their analyses.

Q. Did you find out from the quartermaster that the result of the analysis of the Nanaimo coal showed that the moisture content was but a little bit more in some cases and a little bit less in other cases than it was at the mine?

A. I made no effort to get any information as to the moisture content. What I was after was the method of getting the sample, and I passed judgment on their method of getting the sample. In my opinion their method of getting the sample is not good.

Q. It is the method under which the United States Government purchases about \$6,000,000 worth of coal a year, is it not?

A. It does not come up to their specifications laid down in the book, the quartermaster told me out there.

Q. But you know that it is the method under which all the coal of the United States Government is purchased for the army and navy, do you not?

A. Well, the method as he told me they took it at there did not come up to what they have in print; it was decidedly a poor method of taking a sample.
[1629—1566]

Q. But that is the method in vogue throughout the United States, is it not?

A. Well, it simply means, Mr. Sullivan, that they don't always live up to it in getting samples.

(Testimony of E. E. Somermeier.)

Q. But is not their method out there the same method that prevails all over the United States?

A. I don't know; I hope not, because their method was not what it was supposed to be in the Bulletins.

Q. You know that that coal was received by the Government that comes from Nanaimo is transferred from ships to bunkers and from bunkers to barges and from the barges say to transports, where transports get coal? A. Yes.

Q. And do you know how the coal gets to the army station?

A. No—yes, I know how it goes to the Presidio; it goes in wagons.

Q. It goes in wagons to the Presidio? A. Yes.

Q. Don't you know, according to the method in vogue at the Presidio where you visited, that the analysis would show the moisture content at the mine and also the moisture content at the place of delivery?

A. It cannot show both at the same time, Mr. Sullivan.

Q. Wouldn't there be a memorandum on the report showing it?

A. It cannot show both at the same time.

Q. Why can't it?

A. You mean their method of taking a sample?

Q. No, I say wouldn't the report show?

A. Oh, I don't know anything about that. [1630—1567]

Q. The report would show the amount of moisture content at the time of the delivery in San Francisco;

(Testimony of E. E. Somermeier.)

there is no question about that, according to their method, is there?

A. According to their method, yes.

I have been in consultation with Professor Folsom lately. *Everything* he comes to town he calls around to see me. I received a preliminary report on his work some two months ago before I came west this last time. I have received no other report from him except verbally. I have visited him at Stanford and have investigated his method of work and called it good, but I have not otherwise acted with him. I have given advice as to the method in which he should carry on his examination.

Q. And have you stated to him that it would be desirable with his court demonstration to take a test of very fine coal as the presence of 1 or 2 per cent dust, if thoroughly wet, would account for a very appreciable moisture increase?

A. Yes, sir.

Q. You have given him that advice, haven't you?

A. Yes, sir.

Q. You have advised him in making the test to get the very finest kind of coal, because that would show the highest degree of moisture in the coal?

A. I have advised him to show what the dust would hold.

Q. And didn't you ask him to make such a demonstration in Court, using the very finest kind of coal?

A. To show what the dust would hold.

Q. On the ground that that would account for a very appreciable moisture increase?

A. No, sir; because the amount of dust was always

(Testimony of E. E. Somermeier.)

a small amount. [1631—1568]

Q. You have been advising him right along as to how he should proceed for the purpose of presenting a pretty good case to the jury, have you not?

A. I have been advising him how to get the facts before the jury—not necessarily to get the facts before the jury.

Q. What do you say, Professor? Have you written him any letters containing your advice as to the method of his examination, and as to the method of presenting the defendant's case to the jury?

A. No, sir; except that one test. I advised him that that one test was a good demonstration test as to the possibility of coal to absorb moisture.

Q. Did you explain to him that he should make a court demonstration? A. No, sir; I did not.

All the samples of Nanaimo coal that I tested were low in sulphur.

My agreement with the Western Fuel Company as to compensation was that I was to get \$25 a day for my time and my expenses. I was not paid any retaining fee. I have had my traveling expenses to San Francisco and to Nanaimo.

Redirect Examination by Mr. OLNEY.

The document which is here shown to me is the final report supplemental to my preliminary report, portions of which Mr. Sullivan read.

(Said document was here introduced in evidence as Defendants' Exhibit II, the understanding being that Mr. Olney would later read portions of it to the jury.)

[1632—1569]

(Testimony of E. E. Somermeier.)

There are other publications on this subject of oxidation issued by the Government, namely, Experimental Work of the Chemical Laboratory, Bulletin Number 323 of the United States Geological Survey, has work on oxidation, on page 22, showing, among other things, increases in weight due to oxidation of samples stored in the laboratory. This bulletin is a reprint of Bulletin 28 of the Bureau of Mines. The United States Geological Survey also published Bulletin 382, entitled: "The Effect of Oxygen in Coal," which was subsequently republished by the Bureau of Mines as Bulletin Number 29.

The method which I used in taking the two samples from the mines at Nanaimo for the purpose of obtaining an idea as to the moisture content of the mine is the same method as is employed by the Bureau of Mines of this Geological Survey in making tests on mines, which they have pursued in practically all of the mines in the United States.

The subject of oxidation of coal has been studied for a good many years, but in the last few years there has been a great deal more attention paid to it.

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Mr. OLNEY.—Q. You have stated in response to a question of Mr. Sullivan's that your conclusions on oxidation are conservative. How do your figures and observations compare with those of others?

Mr. SULLIVAN.—We object to that as incompetent.

(Testimony of E. E. Somermeier.)

The COURT.—The objection is sustained. He has testified to what he has done as a chemist, and he has given the actual results found by him. [1633—1570]

Mr. OLNEY.—That is in response to a question put by them, if your Honor please, where they were questioning the conversatism or the accuracy of his figures which were based on his general observation. Now, I take it that he has the right to compare his ideas and his results with those given by other people, according to his knowledge.

The COURT.—Under the same conditions, and doing the same work, or operating on the same thing, and at the same time, perhaps, that would be true, but then you would not get any further than you have with his results and his experiments. It is just the same proposition of supporting one expert by showing that his result corresponded with the result reached by another expert who is not here.

Mr. OLNEY.—No, your Honor, but the witness is here testifying as an expert, and he says: "I got these results, this is in my opinion in this case." Now, when he is asked whether or not he is sure of that opinion, whether or not it may be too great or too little, then certainly he has got the right to say, and we have the right to bring it out on redirect examination, that his opinion, as compared with the opinion of other men, other people in the same line, the general consensus of opinion of investigators in this matter, is on the conservative side.

The COURT.—I don't think so; the objection is

(Testimony of E. E. Somermeier.)

sustained. He has told us what he has done, what results he has obtained, and how he obtained them, and he has stated to us that this is conservative.

Mr. OLNEY.—We note an exception. [1634—1571]

Q. Mr. Somermeier, it appeared in evidence that the car at Nanaimo which had stood out in the rain for two or three days and remained for some six weeks exposed to the sun, had gained in weight some small percentage. Will you compare the conditions that were found in that railroad car, for the holding of moisture, with the conditions which would prevail in a storage pile?

A. The conditions of retaining moisture would not be so good as in a storage pile, but approximating that toward the middle of the car; the storage pile would be much larger, and would have a greater capacity even than the car.

Mr. OLNEY.—Q. Have you observed any difference between these coals and other coals you have examined, with regard to oxidation; in other words, would the observations which you have made on other coals, in connection with the subject of oxidation, be a reliable basis for an opinion concerning the oxidation of these coals? A. Yes, sir.

Recross-examination by Mr. SULLIVAN.

Mr. SULLIVAN.—Q. This report, Bulletin 29, issued by the Bureau of Mines, on the effect of oxygen in coal, which you have handed to us, I wish you would point out in this bulletin any place where reference is made to the fact, if it be a fact, that the

(Testimony of E. E. Somermeier.)

weight of coal is increased by oxidation.

A. On page 68. [1635—1572]

“It is probable that in the sub-bituminous coals, and more especially in the lignites, oxygenation begins immediately after the coal is blasted from the face in the mine. Zincken quotes Bischoff to the effect that the brown coal of Putzchen absorbed 11 per cent of oxygen from the atmosphere in eight days,” and so on.

Q. Just point out there in that book any word or any sentence which declares that the oxidation of coal results in increasing the weight of the coal?

A. I thought that was direct.

Q. That is a mere statement as to the effect of oxygen in coal.

A. It says it absorbed 11 per cent of oxygen from the atmosphere in 8 days.

Q. Just show me anywhere in that book which says that oxidation in coal results in increasing its weight?

A. That statement there says it.

Q. Is that the only statement you can refer to?

A. I can read the rest of the page if you desire it.

Q. Show me anything in that book which shows that coal increases in weight by oxidation?

A. “More recently Stremme and Spate have shown some absorption even by sapropelic coals standing for various periods in the museum. It should be noted, however, that the sapropelic or alga coals are very much less susceptible to oxidation on exposure than are the more bituminous coals, which are humic.

“It is not impossible that some of our peats will

(Testimony of E. E. Somermeier.)

be found to assimilate still greater quantities of oxygen on exposure. This question, as well as that of the immediate loss of volatile in freshly mined lignites or sub-bituminous coals, is one deserving careful examination. The results [1636—1573] of the very interesting as well as important, investigations recently published by Parr and Hamilton, show that deterioration is strongly marked and rapid.”

Q. Can you point out anything in that book which says, especially under the title, “Weathering of Coal,” that coal increases in weight by reason of oxidation?

A. As I interpret chemical language, Mr. Sullivan, what I have been reading is nothing else than that.

Q. This coal at Nanaimo is not sub-bituminous coal, is it? A. It is bituminous.

Q. It is not lignite, is it?

A. It is bituminous coal.

Q. Is that all that you can find in that book which indicates or states that coal is increased in weight by reason of oxidation?

A. No, sir; continuing on the same page further:

“It may not be over-hazardous to estimate that some of the published calorific values are as much as 200 calories less than the efficiency of the coal in the ground.” Determination of calorific value is equivalent to an increase in weight, approximately.

Q. Is not the calorific value of coal affected by moisture? A. Yes, to the extent—

Q. (Intg.) And if the moisture of the coal were increased from 3 per cent to 10 per cent, the calorific

(Testimony of E. E. Somermeier.)

value would be proportionately affected?

A. Proportionately less.

Q. Even if no oxidation took place at all?

A. Yes.

Q. Can you find a single sentence in that book that positively shows that oxidation increases the weight of coal, in so many words?

A. The whole stuff that I have been reading says that. [1637—1574]

Q. That is your interpretation of it?

A. And my interpretation is the interpretation of a man who knows his subject, I think.

[Testimony of Ernest Kroder, for Defendants.]

ERNEST KRODER, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. KNIGHT.

I am master of the S. S. "Thor" and for a number of years last past I have been engaged in carrying Japanese and Australian coal from Japan and Australia, respectively, to this port. They determine their bill of lading weights of coal in Japan by the capacity of their lighters. They have a water line on their barges and they know how much coal it takes to sink down to that mark. You can reach an approximate estimate of the quantity of coal laden on the S. S. "Thor" by knowing her carrying capacity.

Cross-examination by Mr. SULLIVAN.

I have been master of the "Thor" since July, 1913.

I have made two trips to Japan in her. Prior to that I made two trips to Japan in the "Titania," and

Testimony of Ernest Kroder.)

I have been to Japan in other boats but not in the coal carrying trade. I took the "Titania" in 1907, and kept her until 1913, when I took the "Thor." On the other vessels I took bunker coal at Japan. In getting the bunker coal it was the custom to weigh every tenth bag ashore and take the average for the rest of the bags. [1638—1575]

The chief engineer oversees this weighing. When it comes to taking a cargo of coal, however, as distinguished from bunker coal, the bags are simply filled at great piles of coal ashore and dumped into the lighters. The bags are not weighed. We know how much coal we are getting by the capacity of the lighters, but of course that is an estimate, not correct according to the pound. The lighter, of course, containing a certain quantity of coal, sinks down to a certain depth in the water, and there is a mark there indicating the full capacity of the lighter. I should say that we would come within a ton or two of the absolutely correct weight in this way. They take the weights by the capacity of the lighter; the bags are not weighed before they are dumped into the lighter.

[**Testimony of David M. Folsom, for Defendants.**]

DAVID M. FOLSOM, a witness called for the defendants and sworn, testified as follows:

I reside at Stanford University and am associate professor of geology and mining in that institution; I have held that position for about 3 years, and am by profession a mining engineer, having received my technical training at Stanford University and the Columbia School of Mines. Having graduated from

(Testimony of David M. Folsom.)

those institutions, I spent a few months traveling around and visiting mines through Montana and then entered the employ of the Boston & Montana Copper Company, at Great Falls, Montana, for about five years, and until I returned to Stanford. I have now been at Stanford since March 1, 1910.

I have been employed by counsel for the defendants in this case to make certain experiments to determine the effect of moisture and oxygen upon the weight of coal.

I made one test upon a large lot of coal in the bunkers at Folsom Street, in this city. The date when the test started was August 14, 1913. One of the bunkers of the regular series at the Folsom Street yard of the Western Fuel Company was divided by a partition and into one of the pockets [1639—1576] formed thereby a lot of approximately 150 tons of coal was weighed. The weighing was done by the Government customs official, and the coal was dumped from the cars into this pocket in the usual way. It was Australian coal from the S. S. "Rothley." The weighing done by the Government weigher was in the regular discharge of the vessel. The cars were watched to see that the weight taken applied to the particular car; the contents of which were placed in the bunker. When the coal was placed in the bunker on August 14, 1913, it weighed 331,740 pounds. It was sprinkled for four nights over the surface by the use of a 5 gallon garden watering can. The total amount of water added to the coal in this way was equal to 5% of the weight of

(Testimony of David M. Folsom.)

the coal, or about 16,667 pounds of water. This would be approximately equal to the amount of water which the bunkers would have received from 5 inches of rain over the area of coal in the bunkers. The sprinkling was at the rate of 500 gallons per night, and extended over a period of from 8 to 12 hours as a maximum; the sprinkling was done rather slowly. After four nights of this sprinkling, the coal was weighed out in the same manner, as is followed in ordinary commercial transactions, over the wagon scales at Folsom Street by Mr. Miller. I observed all the weighings. The coal weighed out at 339,270 pounds representing a gain of 7,530 pounds, being 2.27% of the original weight. We took every precaution to see that nothing besides the water was added during the interval of this test. I had two students from the Geological Department at Stanford on watch at the bunkers all the time—they were on 12 hour shifts. Thus, this particular pocket or bunker was watched day and night from the time we started. As to the scales, I had an inspector sent down from the Fairbanks Morse people before we started, and got a report from him in writing that the scales [1640—1577] were correct.

I made a second experiment of the same sort. On August 18, 1913, 323,170 pounds of coal were weighed into the same pocket of the bunker as was used in the last experiment. This experiment was repeated in exactly the same manner except that the lot of coal we used in this case, being taken during the cleanup of the ship, was coarser and had more lumps in it

(Testimony of David M. Folsom.)

than the first lot. This coal weighed out after 4 days at 329,930 pounds, a gain of 6,760 pounds, or 2.09%. Our idea was to get an approximate idea of the effect of fineness or coarseness in the coal on the increase in weight by moisture content. As the coal went into the bunker it was very dry and dusty. When it was taken out it was dry on the surface so that a casual observer would not notice any wetness or drops of water, with the exception, perhaps, of the fines which appeared moist.

The next experiment was for the purpose of determining the moisture content of Australian coal as it comes in to this port. I took some 10 or 12 samples, usually two per day, from a vessel discharging here. The samples were actually taken from the cars or the top of a bunker just after a car had been dumped. Some of these samples were analyzed and the moisture content determined in the chemistry laboratory at Stanford, and some of them were sealed and delivered to Professor Parr and Professor Somermeier for their determinations. The average moisture content of the samples which were analyzed at Stanford was 2.76%.

My next test was to determine what the coal would increase in weight by the addition of moisture over a considerable period of time. The coal used in this test was Richmond [1641—1578] or Australian coal. (Plate 1 at this point exhibited to the jury was, according to the witness, a graphic representation of the results of such test.) The test represented on plate 1 was made on coal taken here in the

(Testimony of David M. Folsom.)

city from the bunkers just after a steamer had been unloaded. The coal was placed in a galvanized iron can in the bottom of which 20 holes were punched about a quarter of an inch in diameter and over the bottom a layer of porous canvas was laid which would allow the water to drain out rapidly, but would retain the fine coal. Before the test was started the canvas cloth and the can were thoroughly wetted and weighed to get the tare. Then coal weighing 57.2 pounds were placed in the can. The coal was sprinkled first with an amount of water equal to approximately 10 per cent of the weight of the coal—five to ten per cent, and weighed a few hours after sprinkling; and then weighed a day after sprinkling. The time to which the coal was subjected to wetting is represented by a line along the bottom, on which the days are indicated, and the months. After about 24 hours following the sprinkling of the coal, water was added to the can of coal, in sufficient quantity to cover the coal, that is, a pailful of water was poured in, and the weights were noted a few hours after, and several days after.

A great many weights were taken which do not show on plate 1. The first percentage of water added increased the weight of the coal a little over 2.1%. The explanation of the percentage lines on the diagram is as follows: The first red line, the lower red line represents the original weight of the coal; above that, these lines represent percentage of gain in weight; the heavy red lines at inch intervals represent half a per cent; the light red lines a tenth per

(Testimony of David M. Folsom.)

cent of gain. The irregular black line running from one circle to another represents the line of change of weight. Two to three hours after the coal had been covered with water most of the water had drained out, but there was still 4.4% retained and the lot weighed 59.7 pounds. After three days of draining out, the lot was reduced to 59.2 pounds, and from that time on the weight remained practically [1642—1579] constant until the next weighing, which was on October 2d. The interval between wettings would be about one week. Two days after the coal was wet by covering it with water it reached a constant weight, that is to say, the coal would first show a gain of from 5 up to 9 per cent, then part of the water would drain off and part of it would be retained, and the draining being completed in about two days, there would be practically no further loss of weight, in other words, the weight would remain practically constant. After the second wetting, after the second soaking, when water was added a second time, it will be noted that the increase of weight was greater than after the first lot of water had been added. On taking the weight a few hours afterwards, it gained up to 60.1 pounds, 5 per cent increase over the original weight of the coal. Water drained out until on the 3d of October it weighed 59.6 net weight. This draining continued until about the 6th of October, and then for three days the weight remained constant. Water was added a third time, and the increased weight amounted to nearly 6 per cent—5.9 per cent; this weighing was taken very soon

(Testimony of David M. Folsom.)

after the water was added, probably about 2 hours was the usual time which was allowed before any weight was taken; after two hours, it gained about 5.9 per cent. Two more hours, it had dropped down to about $5\frac{1}{4}$ per cent; in 24 hours from the time it was covered with water it dropped down to 4 per cent, and in about two days it had reached a constant weight, a weight of about $59\frac{1}{2}$ pounds, which represents a gain of 4 per cent. This operation of soaking the coal was repeated until the 10th of November, and after the 10th of November, the coal was exposed to air drying, being allowed to stand without any further addition of water, until the 24th of November. [1643—1580]

This can was not out in the open air. A loose cover was placed over it. The experiment was an attempt to imitate the conditions on the inside of a pile of coal, and the lot of coal being so small the surface evaporation would have played an important part, had it been entirely exposed to the currents of air. That would not be the case with the inside of a pile of coal. The evaporation would there probably run down a foot or so. After the 24th of November the coal was exposed to the rain out in the open, the covering being removed and left off until the second of January. During that period there was a little over 7 inches of rainfall.

This chart or plat 1 represents the time in which the rainfall—that is the steps up in this chart represent the rainfall to which the coal was exposed. The horizontal lines represent simply the weather condi-

(Testimony of David M. Folsom.)

tions, the solid block represents night, the shaded portion of the horizontal line represents foggy weather, clouds, as shown in the legend, and the open square spaces represent days when the sun shone and when the coal would be exposed to evaporation; the change of weight from the rainfall of course is fluctuating, generally depending upon the amount of rain at the time. Usually, in the first period the rain fell at night and it was impossible to get an observed weight immediately after the rain, as in this case here, the weight was not taken until several hours after the rain was over.

Q. At that time did the chart show an increase in weight of the coal?

A. It shows the weight increased after the rains, and the rain drained off, water due to rainfall drained off, in a similar manner. During the [1644—1581] period from November 29 until about the 21st of December there were no heavy rains; there were a few showers; about .14 of an inch on the night of the 12th of December and a little rain on the night and morning of the 19th of December, but the coal for the most part, for a period of about 15 days, was exposed to clear weather in the daytime, or on sunshiny days, and a certain amount of evaporation took place, which decreased the weight and brought down the gain to a little over $4\frac{1}{2}$ per cent, to 4.35 per cent.

Q. From November 29, according to this chart, to December 12, a period of some 13 or 14 days, was there any rain?

A. No rain at all, no observed rain; there was a

(Testimony of David M. Folsom.)

little rain here, but it was so small it could hardly be measured; I think it was .01 of an inch.

Q. What was the behaviour of the coal during that period in regard to weight?

A. During the first part of the period it lost weight, and from the 5th of December to the 12th it remained at a constant weight, with no appreciable loss.

Q. How much gain over that at the beginning?

A. 4.35 per cent. With the beginning of the rain the coal increased in weight again; the weights at such times were taken only about every day and for a while no attempt was made to take the peaks, that is, to get the high points immediately following heavy storms. For instance, this storm represents over an inch of rainfall during one night, and the weight of the coal was not taken until 2 o'clock in the afternoon, when it had several hours in which [1645—1582] to drain. In the heavy storm on the night of the 31st of December, an attempt was made to study the exact rise and fall of this weight, and the last weight which was taken was at 10 P. M. December 31st. The net weight of the coal was 61½ lbs., which represents a gain of 7½ per cent over the original weight of the lot.

* * * * *

A. 7½ per cent. This rain stopped about midnight of the 31st at Palo Alto. The next weight taken sometime about 11 o'clock in the morning shows a drop down to 60.4 lbs., a gain of 5.6 per cent. Another storm on the 2d increased the weight of the coal somewhat, and there was a drop after that to

(Testimony of David M. Folsom.)

60.4 lbs., and to 60.3, and then finally 60.2. The time interval represented after the last storm is greater than that implied by the length of the chart. It represents a period of approximately two weeks. Now in this period the coal was taken inside and the can covered again, and the coal simply allowed to drain out in an ordinary manner, and at the end of approximately two weeks, or 13 days, the coal weighed 60.2 lbs., a gain of $5\frac{1}{4}$ per cent from the original weight. At the end of the test this coal was screened through a one-half inch mesh. The amount of fine material under one-half inch was 22% of the total sample. The moisture determinations on this coal before it had been placed in the can showed 2.2% moisture. The zero mark on the platted diagram represents the original weight of the coal with 2.2% of moisture already in it. The final moisture taken from a sample at the conclusion of the test was 7.3%. This coal was screened and the fine and the coarse separated, the moisture determined on. The fines contained 13.83% of moisture, while some of the lumps which were taken out contained 4.44%. The increase in weight as shown by the differences indicated by the analyses was 5.1% on the total sample. By actual [1646—1583] weight I got 5.25.

Q. Now, I note on this diagram, Professor Folsom, that in the table as you add water heat, as you call it, that is the weight of the coal taken a few hours after the water is added, and of course when it would weigh most, gradually goes up, and likewise the weight of the coal after it has been allowed to

(Testimony of David M. Folsom.)

drain for a considerable period goes up after successive wettings. Has that fact any significance, and if so what is it?

A. I think the fact has this significance, that while—

Q. (Intg.) Will you explain to the jury just what the fact is? I am calling your attention to it; I might not have made it very clear.

A. Well, the most significant thing about the whole test is that beginning with a 2 per cent gain in weight following sprinkling and 3.6 per cent gain following the first soaking, that each additional soaking meant an additional gain in weight, fractional in many cases, but in every case a little additional gain weight. Now, this is due apparently to the packing of the fines in the coal as the water passed down through the coal, and in draining out and in packing these fines until they were a more or less impervious layer; also it was due to the weathering of the coal in repeating the dryings and wettings it was subjected to; the fine cracks in the coal open up, and more pieces of coal chip off the large lumps, making a greater amount of fines, and in small part it is probably due to the large lumps of coal actually absorbing and retaining a certain amount of this moisture; for [1647—1584] each addition of water there is additional weight, even after a period sufficient for draining has lapsed. I may say that this can is approximately 13 inches in diameter and about 20 inches in height, and it represents a depth of only about 20 inches of coal, through which the coal could

(Testimony of David M. Folsom.)

drain very readily. At the close of the test you will note that a good deal of the fines were concentrated in the lower part of the can, due to the action of the water in washing the fines down and packing it.

Q. What would be the effect of that concentration as to giving up moisture?

A. The fines which are packed hold the water mechanically for a long period of time, not only hold it mechanically, but prevent the air coming in and causing evaporation of the water so held.

Q. That is, it would increase the difficulty of the coal giving off moisture by draining or by evaporation? A. It would.

Q. In each case, after you have added water does the coal come back to a position and to a weight at which it will practically lose no further weight by reason of evaporation or drainage?

A. It does; or if a loss, it would be a small loss, but these weights were taken to the nearest two ounces and over a period here of two weeks, from November 10 to November 24th. The last twelve days of that there was only a loss of about 2 ounces out of a total weight of 60 lbs.; that is a loss of about one-tenth of one per cent.

Q. Would or would not that indicate that the [1648—1585] coal would hold that amount of moisture indefinitely?

A. It indicates that it would hold this moisture indefinitely; that is, it might lose a fractional percentage; if it were left in there for a year you expect the

(Testimony of David M. Folsom.)

flow to drop off, part of a per cent.

Q. And these points at which you hold moisture in this manner indefinitely, as I understand you, come gradually up, gradually higher with each successive wetting?

A. They do. Each successive wetting added a certain weight to the coal.

This test began September 23, 1913, and ended January 15, 1914. Up to November 10, 1913, water was added artificially. After that no water was added except by rain. From the 25th of November until the 2d of January the can was out in the open air. Then it was taken into the laboratory and allowed to drain out in a large room there in which the experiment was performed.

My next test was similar to that last described, except that the coal used was Wellington instead of Richmond or Australian, and that the period of exposure was shorter.

The test was made in exactly the same way on a lot of 61.9 lbs. of coal sprinkled first, about 5 per cent moisture. It weighed in 24 hours, 60.9, a gain of 1.6 per cent. I then added water sufficient in quantity to cover the surface of the coal, and this water drained through, the maximum gain being 4 per cent, and then dropping down to 3.2 per cent; practically a constant weight maintained for four days; the test started on October 9th and on October 18th, after the second wetting [1649—1586] the second soaking, after draining, the coal had gained 3.5 per cent. Then the galvanized iron can was

(Testimony of David M. Folsom.)

placed in a larger vessel in which there were no holes punched and the whole coal was covered with water and allowed to stay that way 38 hours approximately; after that a small galvanized can was taken out and water allowed to drain out; it drained out very rapidly; the coal maintained, or retained $41\frac{1}{2}$ per cent of its original weight.

Mr. SULLIVAN.—Q. What date was that? What was the weight when that water was put into it?

A. Before the water was put into it, the third soaking, the weight was 64.4 lbs. After soaking for 48 hours it weighed 65 lbs., and dropped to 64.8 and 64.7.

Mr. OLNEY.—Q. Before this weight of 65 lbs. had been taken was it allowed to drain at all after it had been soaked?

A. It had been allowed to drain—I will have to look into the detail note-book to tell you how long; it was allowed to drain several hours before this weight of 65 lbs. was taken.

Mr. SULLIVAN.—Q. When was that water put into it—what date?

A. On the 25th of October; it drained until some time on the 27th.

Q. It went up to 65 lbs., you say?

A. Yes, that weight was taken several hours after it was allowed to drain.

Mr. OLNEY.—Q. After that what was the behavior of the coal, after this soaking?

A. Then the water was added again on the 3d of

(Testimony of David M. Folsom.)

November and allowed to stand for a week; this presents [1650—1587] the time between the 3d and 10th, because the weights were not taken every day; it came to 64.8 lbs.; then water was added again on the 10th of November. On the same day on which water was added to the lot of Richmond coal that was being tested alongside of it. After the 10th of November no water was added by artificial means, and the coal was allowed to drain until the 24th of November, a period of two weeks, and it weighed at that time 64.7 lbs., which represents a gain of a little over $4\frac{1}{2}$ per cent. It was then taken out in the open and exposed to rain until the 6th of December; during that time there was about 1.3 inches of rain in three storms. This rain occurred at night, and the weights were not taken until after the coal had been allowed to drain some hours, but it showed some increase; the highest recorded weight being 65.1.

Q. That would equal 5 per cent?

A. That would equal a little over 5 per cent, and the final weight after draining out in the open, with the covering of the can off from the 29th of November until the 6th of December was 64.6. This weight you will observe was two days constant. It represents 4.35 per cent gain in weight from the original weight. This coal was screened at the end of the test and found that about 30 per cent of the 62 lbs. which was taken as a sample was fine coal under $\frac{1}{2}$ -inch diameter; the coal had been sampled before going into the can and had a moisture content of $2\frac{1}{2}$ per cent. The sample of coal taken at the conclusion

(Testimony of David M. Folsom.)

of the test had a moisture of 6.8 per cent which is a gain of 4.3 per cent; a gain in weight per cent of 4.35 per cent. The moisture [1651—1588] in the screenings was about 12 per cent; the fine coal retained much more moisture than the coarse coal.

Considering that the Wellington coal used in this experiment was exposed for a shorter time than the Richmond coal used in the last above-described and preceding experiment the coals behaved much the same. The increase by successive wettings is just in accord with the increase by successive wettings in the Richmond coal. The fine coal packed in just the same way and contained much more moisture than the lump coal. There is no observed difference in the behavior of the two coals when subject to artificial wetting or when subject to natural wetting through rain. (The witness used a plat in explaining this experiment to the jury.)

My next experiment was also on Wellington coal. It shows exactly the same results as the last experiment, except that the coal was exposed for a longer period of time. There was about 27% of the fine coal, and the gain was 4.1%. This lot of Wellington coal was exposed from October 12, 1913, until December 14, 1913. It had a longer period of air drying out in the open at the conclusion of the test. From November 24th until December 12th, there was no rain at all; then there was a shower of .14 of an inch on the night of the 14th. The increase in the coal before the last shower was 4.1%. At the end of

.(Testimony of David M. Folsom.)

the experiment the can was exposed to the weather and the sun. The cover was off. (This experiment was also illustrated to the jury by a plat.) [1652—1589]

My next experiment was a test of coal exposed only to the rain, and not subjected to artificial wettings. I used a sort of receptacle, namely, a can with holes punched in the bottom and a layer of canvas laid over them. This can was placed out in the open without shelter from the rain on the night of October 31, 1913, and rainfall observations were taken along at the same time that the weights were taken. 56.9 pounds of coal were placed in the can. The coal varied in weight with the weather, increasing following rain and draining out somewhat after rain, especially on days when it was very clear and the sun was shining bright, and it was warm; during foggy days, which are indicated on this chart by a vertical etching on this rain chart, there was very little loss of weight, you could not observe any loss in weight; in fact, on some heavy foggy nights, there was a very slight gain of perhaps an ounce in a lot of 57 pounds of coal, the fog only affecting the surface. Following these rains, it rained here less than an inch and the coal gained about 1 per cent; after a sunshiny day, it dropped down to about half a per cent; following another rain of .3, it built up to 57.6 pounds, a gain of 1.75; and then for a period between about the 4th of November and the 10th or 11th, there was no rain, and it dropped back to about half a per cent. Then there were several showers at

(Testimony of David M. Folsom.)

night, which amounted to about .7 or .8 of an inch, and it built up to 57.9 pounds, a gain in weight of 1.75. It drained off partially until the 17th, and then heavy rains again came in, or rains which amounted to a little over an inch, and that built it up to 58.1 pounds, a gain of over 2.1 per cent; then it drained in fair clear weather [1653—1590] warm, for four days, and dropped down to an apparently constant weight, no change in weight between the 21st and 24th, although the weather was fair, at that time, of $1\frac{1}{4}$ per cent, 57.6 pounds. Then storms built it up again to a gain of nearly $2\frac{1}{2}$ per cent. Then, between the 29th of November and the 12th of December, there was this period of fair weather, during which the coal remained at practically a constant weight of about 1.7 per cent gain. Then there were some foggy nights, which had a little effect on it, and then a shower of about .01 of an inch, and then a shower on the night of the 12th of .14, the coal gained to over 2 per cent in its original weight, and then there was a period of draining until the 18th. On the morning of the 19th this coal was taken out, just after a shower of perhaps .2 of an inch, and the final gain was 2.2 per cent—about 2.3 pounds out of 59 pounds.

Twelve per cent of the coal was screened under a $\frac{1}{2}$ -inch mesh. The final moisture on the entire lot of coal showed an increase of 2.2%. The percentage gained in moisture in the lump coal was 1.06 and in the fines $91\frac{1}{4}\%$. If the fines in this sample had amounted to 25% instead of 12% of the whole, I

(Testimony of David M. Folsom.)

would say, judging from the other tests that I have made that the gain would have been from 3 to 4% in the whole lot.

My next test also involved the exposure of coal to the rainfall without any artificial wetting. The chief difference between this and the former test was that I used a more considerable quantity of coal. I had a bin 4 feet square and 5 feet high and alongside of it a galvanized iron can 10 inches in diameter and 5 feet high, and containing 115 pounds of coal. There were 20 quarter-inch holes in the bottom of the can with [1654—1591] a layer of canvas over it. The wooden bin contained 4200 pounds of Richmond coal. This experiment is represented on my plats 4 and 5. The bin and the can were exposed to the air between November 11, 1913, and January 2, 1914. There was an increase in weight in the can during that time of 1.65%. There was an increase in weight in the bin of 2.15%. The bin was not water tight, being made of coarse, rough lumber. The can contained 5% of screenings only, that is to say, it was practically all lump coal. The bin, on the other hand, contained 12% of fine coal. I did not in this experiment take daily weights. I did not know before the test what percentage of fines I had in either lot, and it was only at the conclusion of it all on the screening that I found the can was a coarser coal, a cleaner coal than the bin. They were both filled out of sacks, and I didn't note the percentage of fines at all. If the bin had contained 25% of fines instead of 12%, I should judge, from the other experiments that I made later

(Testimony of David M. Folsom.)

than these, with the same amount of rain, that the increase in weight would have been in the neighborhood of $3\frac{1}{2}\%$ to 4% . It might have amounted to more than that, but it would at least have been that much. I used for the screenings in this case, as in the previous experiment, a half-inch mesh.

Next, I made a series of 30 or 40 tests to observe the ratio or extent to which coal would increase in weight by the addition of moisture, according to the percentage or proportion of fines it contains. These tests extended altogether over a period of months. After the tests the coal was screened and the amount of material under one-half inch determined. The coals which had a high percentage of fines gained much more in weight when subjected to rain or when subjected to artificial wetting, than the coarse lump coal. Coals that had 5% of fines would only [1655—1592] gain, as a maximum, about $1\frac{1}{2}$ per cent, or as shown here, 1.6, while coals that had 30 per cent of fines would increase, as a maximum, 5 per cent, after repeated wettings. The extent to which coal will increase in weight varies directly in proportion to the fines. My chart No. 7 shows in graphic form the relation between the two. These red circles on this chart represent tests which were made in the laboratory to determine the maximum amount of gain which could be expected with any lot of coal, with a given percentage of fines, calling fines arbitrarily all coal under $\frac{1}{2}$ inch in diameter. I might mention that the openings in the screens on the Folsom Street bunker are $\frac{5}{8}$ of an inch apart, that is to

(Testimony of David M. Folsom.)

say, a little over a half inch. [1656—1592½]

The coal was subjected to an artificial wetting until it had gained approximately the maximum amount that could be expected of it, and further wetting would not increase the weight.

The gains that I am about to give represent the maximum gains of Wellington coal according to the percentages of fines, that is to say, the coal was subjected to wetting until it gained approximately the maximum amount that could be expected of it, so that further wetting would not increase that weight. Clean coal, that is, lumps without fines, would gain .8 of a per cent; coals with 5% of fines would gain 1.5%; coals with 10% fines, 2%; with 15% fines, 2.6%; with 17% fines a little over 3%; with 22% fines, 4%; with 27% fines, 4.6%; with 30% fines, 4.7%; with 40% fines, 7%; with 45% fines, something over 71%; with 59% fines, 8%. A small lot of Wellington fine coal all under ½ inch in diameter gained a little over 15%. These figures that I have given here are not the peak weighings, as shown on the other diagrams immediately after the water is added, but represent the valleys, and in no case are they less than 4 days' draining. The result would be that on coal containing 5 per cent of fines, there would be a permanent increase—what you may call a permanent increase of moisture to the maximum amount of approximately 1½ per cent, and it would retain that at least several months—the period of time during which these tests were conducted. This coal was not exposed to a very long draining, being placed in

(Testimony of David M. Folsom.)

a large canvas which was shaken and twisted around so that the water could be squeezed out of the canvas in an attempt to dry it out. That would be a case of 100% screenings. In general then it may be said that the extent to which coal would increase in weight varies directly with the proportion of fines [1657—1593] that it contains. I now present the table designated table 1, indicating the percentages of increase in the weight of coal, in proportion to the amount of fines contained in said coal where the coal is subjected to artificial wettings.

This is a tabulation showing the effect of size of coal on the maximum gain in weight on the coal that has been wet by artificial means, showing the amount of coal taken in each lot in the test, the kind of coal, whether Australian or Nanaimo coal—the Wellington, the percentage of fine coal, using the same arbitrary assumption [1658—1593½] that coal under ½ inch in diameter is considered as fine, and the gain in weight after repeated soaking or wetting; that is, taking commercially clean coal, lump coal, which is sold commercially here in the city as lump coal, but contains a small amount of dirt and fines, and after wetting it it very quickly reaches its maximum; it is in the second wetting it reaches a maximum gain of 1½ per cent. Coal, which at the completion of the test was screened and showed 10 per cent of fines, showed an increase after the first wetting, and after four days draining after the first wetting of 1.56 per cent; after the second soaking 2 per cent and after the third soaking 2 per cent. 15

(Testimony of David M. Folsom.)

per cent of fines, the first soaking was 1.62, the second 1.83, the third 2.44, the fourth 2.63, and the fifth 2.81. These two are Wellington coal, tests 19, 13 and 20, are all Wellington coal. Test 14 is Richmond coal. 17 per cent of fines under $\frac{1}{2}$ inch, as far as the test was carried, showed a gain of 3.25 per cent.

Q. That was after the third wetting?

A. Yes, sir.

Q. And after four days' draining?

A. Yes, apparently it had not reached its maximum. With 22 per cent fines, in the Richmond, after the fourth wetting it showed 4 per cent; after the first wetting it only showed 3 per cent. With 27 per cent fines, in Wellington coal, after the first wetting it showed 3.1 per cent increase after four days' draining; after the fifth wetting an increase of 4.55 per cent. 30 per cent fines, after the first wetting showed an increase of 3.2 per cent; after the fifth soaking, 4.7 per cent. Test No. 10 was made on a lot of commercial screenings, a sample taken here in the city; the coal contained practically no dust; it was coal which ranged in size from just under one-[1659—1594] half inch down to about the size of wheat, and with very little dust in it, some dust, but it was fairly free from dust, that showed a gain of 3.08 per cent after the first soaking, and after four days' draining, and 4.74 after the fourth soaking.

Q. Would the presence in commercial screenings of coal as fine as dust have made any difference?

A. Yes, it would.

(Testimony of David M. Folsom.)

Q. In what way?

A. The fine dust, from the test which I made on it, would hold as high as 40 or 50 per cent of its weight in moisture; and the small amount of dust in this would have an appreciable increase on the gain in weight.

I have another table or plat designated table 2, designed like table 1, to indicate the percentage of increase in the weight of coal in relation to its proportion of fines, except that this coal was subjected to natural rainfall instead of, like the coal in table 1, to artificial wetting.

A. This is a tabulation of a number of tests made of various lots of coal in amounts ranging from 53 lbs. up to 4,200 lbs.; the coal was exposed simply to the rain, no artificial wetting whatever. The weight of the sample is given, the kind of coal, the percentage of the coal under $\frac{1}{2}$ inch, the time which it is exposed, the amount of rainfall during that time and the time of draining after the last shower before this final determination of gain was made; and also the highest recorded gain during that period of time; that is, on these small samples the line of recorded gain corresponds to the highest peak in some of these preliminary plates that have been shown. The coal with only 5 per cent of fines, exposed 35 days, and with 3.8 [1660—1595] inches of rain, but with 16 days of fair weather after the last rain, gained .95 of one per cent.

Q. That was with 116 lbs.?

A. Yes, sir; 116 lbs. in a can 5 feet high. The

(Testimony of David M. Folsom.)

highest recorded gain during that time was 1.63 per cent. The same test continued 17 days, with 6 hours draining after the last shower, showed a gain of 1.64 per cent, the highest recorded gain being $2\frac{1}{2}$ per cent. With 57 lbs. of Wellington coal, in a can about 20 or 24 inches in height, exposed for 40 days, with 4.9 inches of rain, and with 10 days' draining after the last rain showed a gain of 1.7 per cent, with the highest recorded gain of 2.45.

Mr. SULLIVAN.—Q. The highest recorded gain was of course during that period of exposure?

A. Yes, sir; it was not the highest gain but it was the highest recorded gain.

Mr. OLNEY.—Q. And with a drainage of ten days?

A. Ten days. That was 1.7 per cent. After that there was a rain of about .3 of an inch and a draining of only 4 hours after that, and that was 2.3 per cent. A large lot of 4,200 lbs. of Richmond coal, 12 per cent fines determined by screening to the test, exposed for 35 days, with 3.8 inches of rain, 16 days' draining, gave a little over 1.02 per cent gain in weight. It was impossible in these cases to determine the highest recorded gain.

The same lot pushed back into the bin and exposed until it had had 17 more days, and until the total rainfall was 9.67 inches, and drained about 4 hours after the last shower, that is, there was a shower in the morning and the coal was weighed beginning at about 11 o'clock in the morning and finishing [1661—1596] about 2 o'clock in the afternoon, it showed

(Testimony of David M. Folsom.)

a gain of 2.15%. A lot of 53 lbs. of mixed Richmond and Wellington coal, exposed for ten days, during which time there was a rainfall of 4.68 inches, with 19 per cent of fines, showed a gain, after 28 hours' draining, that is, 28 hours elapsed after the last shower and before the coal was weighed, of 2.36 per cent, the highest recorded gain being, just after the heavy rain, 3.78 per cent. Another lot, with 20 per cent of fines, exposed for the same length of time, the same amount of rain, 28 hours' drain, showed a gain of 2.48 per cent, the maximum recorded gain during that time being 3.3 per cent.

A lot of 2,950 lbs. of mixed Richmond and Wellington coal, placed in the bin, approximately 5 feet in depth, determined after the test to have 22 per cent of fines in it, exposed for 13 days, from the second until about the 15th of January, during which time there was approximately $2\frac{1}{2}$ inches of rain and drained 8 hours after the last shower, the last shower having ended about midnight and it was weighed out the next morning, it had a gain of 2.24 per cent.

A lot of 72 lbs. of Richmond coal, 30 per cent fines, exposed for 24 hours, with 7.16 inches of rain, draining for 28 hours, showed a gain of 3.83 per cent after that draining, the highest recorded gain being 5.44 per cent.

A lot of 61 lbs. of mixed Richmond and Wellington-Australian and Nanaimo coal, with 59—practically 60 per cent of fines determined by screening after the test, which was exposed for two days, during which time it rained an inch and $\frac{1}{4}$ and drained for 12

(Testimony of David M. Folsom.)

hours, showed a gain of 7 per cent, the highest recorded gain being 7.82 per cent.

This lot of coal was afterward wet down very thoroughly, with various buckets of water, put on it rapidly, and wet several [1662—1597] times in the course of two days, and then drained for two more days—several more days, I don't know the exact number, and it showed a gain of about 8 per cent. That is, by artificial wetting, a great quantity of water only increased this gain about one per cent, though it was not extended over any great period of time.

Q. In other words, wet by rain had brought it up nearly to saturation? A. Yes, sir.

I also had a table or plat of a test, showing the gain in the weight of coal simply exposed to the rain in January, 1914.

This test is exactly similar to the ones shown this morning, and made in just the same way, this with a can, and perforated holes and the canvas; the original weight of the sample, 71.7 lbs., placed out on the 2d of January; there was no rain until the morning of the 7th—the night of the 6th, but the weight remains constant during this time, from the 6th and 7th; then following a rainstorm of about .4 of an inch it increased in weight 1.25 per cent. Between the 6th and the 12th there was no rain and a slight drop in the weight down to where it increased was only about .7 of one per cent; and then several repeated showers between the 12th and the 14th that amounted to about 2 inches brought the gain up to

(Testimony of David M. Folsom.)

2.1 per cent after 24 hours of rain; after 48 hours of drain it still had 2.1 per cent gain; then a heavy storm amounting to about an inch brought the peak up to $4\frac{1}{2}$ per cent, and after draining still had 3 per cent. [1663—1598] Another storm brought the gain up to probably $4\frac{1}{2}$ per cent, the peak in that case was not noted, the coal was not weighed for 6 or 8 hours after the rain stopped, the rain stopped about midnight and the coal was weighed about 11 o'clock the next morning; but after two days draining following that rain there was still approximately $3\frac{1}{2}$ per cent water retained in the coal. Then a heavy storm brought it up to approximately $5\frac{1}{2}$ per cent of increase, and after draining it brought it down to about 3.9 per cent over the original weight. In some of the charts showing artificial wetting the point is brought out that after each draining the coal reached approximately a constant weight and that this constant weight increased with successive soakings. The same is apparently true when coal is exposed to rain that not only the peaks are built up by repeated showers and storms, but that the constant weight or the amount of water which the coal will retain after these wettings increases with each successive storm and each successive addition of water, whether by artificial or natural means. This coal was exposed for a period of 24 days and to approximately 7 inches of rain as a total.

Q. And the gain was 3.9 per cent?

A. The gain was 3.9 per cent. The original moisture content in this coal was 2.4 per cent; the final

(Testimony of David M. Folsom.)

moisture on the whole sample was 6.23 per cent; the moisture in the fine coal screened out was 10.4, and in the lot of coarse coal, about 4.44; and there was one large lump of the coal, about 10 inches in diameter, which was selected, was crushed and the moisture determined to be 3.8 per cent. The total amount of screenings was 30 per cent. [1664—1599]

Q. That was the percentage of screenings in the entire lot?

A. In the entire lot; the lumps showed a gain of 1.4 while the fines showed an increase in weight of 8 per cent.

Q. The coarse coal without the screenings showed an increase of 2 per cent, did it not—gain?

A. The mass of the coarse coal, yes.

(The table discussed was here marked Table Number 3, for identification.)

I made certain tests on the oxidation of coal and prepared tables showing the results thereof.

(A tabulation was here produced to illustrate these tests.)

The analytical work was done by a chemist named Mr. Bohart, but he was under my direction. I prescribed the methods and he worked under my direction and we conferred every day as to the results obtained. I made some weighings and Mr. Bohart made some. I made none of the analyses at all.

Counsel for the prosecution having objected to the witness testifying to a table purporting to give the results of experiments, the analyses for which were made by another man, it was agreed finally that the

(Testimony of David M. Folsom.)

witness might testify on the present assumption that the analyses were correct, and with the understanding that counsel for the defendants should hereafter produce as a witness the chemist who actually made these analyses. It was conceded by counsel for the prosecution [1665—1600] that the weights involved in said experiments were made by the witness and were as depicted upon the table.)

Mr. OLNEY.—Q. Just proceed now, Professor.

A. The first two tests were made on lots of coal crushed to 10 mesh. These were small lots, one weighing less than a lb.—300 grams. They were placed in an oven where the temperature could be controlled. It was an electric oven, where the temperature could be held at any specific point.

Mr. SULLIVAN.—Q. That is something you don't know yourself, do you? A. Oh, yes, I know that.

Q. Were you present at the time that was done?

A. Yes. This coal was placed in there on the 20th of August and the temperature was set at 45 degrees centigrade, 117 degrees Fahrenheit. A pan of water was placed in the oven with these two samples so that they might have the atmosphere saturated with moisture. Weights were noted on the 27th of August and on the 31st of August were noted again, and on the 31st of August the temperature of that oven was increased to 80 degrees centigrade, which is about 176 degrees Fahrenheit, 36 degrees below boiling. The samples were left in there for 6 days; the final weight of sample No. 1 was 304½ grams, showing an increase over the original weight of about 6 grams.

(Testimony of David M. Folsom.)

The final weight on the second sample was 296.6 grams, showing an increase over the original sample 6.3.

Mr. OLNEY.—Q. When was this final weight taken? [1666—1601]

A. It was taken on September 6th. The experiment began on August 20th and the temperature was raised on the 31st of August to 80 degrees. It was exposed to 80 degrees centigrade for 6 days. The moisture determination on the first lot was 2.8 per cent at the beginning of the test and 1.9 per cent at the end of the test; it had lost 0.9 of one per cent in drying out due to the temperature.

Q. In moisture?

A. Yes. In the second lot, the first moisture was 2.9 and the second was 1.7, it lost 1.2 per cent of its moisture due to the drying out. The total gain in weight was 2.04 per cent in one case, and 2.17 in the other. This gain in weight when the moisture content had dropped could only be ascribed to a gain through the absorption of oxygen from the air. To determine whether this oxygen was absorbed by the sulphur or by the coal itself we made an analysis to determine the total amount of sulphur in the coal; the amount of soluble sulphur, that is, the amount of oxidized sulphur, because when the sulphides of iron are exposed the sulphate becomes soluble, and the increase in weight from that cause noted; it amounts to about .04 of a per cent in one case, and .06 in the other; it means that the change in weight in this particular test due to the oxidation of coal itself was 2.9

(Testimony of David M. Folsom.)

per cent in one case and 3.3 per cent in the other.

Q. Was that an increase in weight?

A. That is an increase in weight due to oxidation, the absorption of oxygen from the moisture of the oven. [1667—1602]

A sample was then crushed to 60 mesh—two samples—and placed in an air-tight glass vessel in which an extra amount of oxygen could be introduced, and where there was 60 per cent of oxygen in the atmosphere inside of the glass vessel instead of the normal 21 or 23 per cent; that is, about three times as much oxygen as there is in the ordinary air, and some weighing was made occasionally.

Q. What are the dates,—how long did that experiment last?

A. One experiment lasted from the 28th of August until the 8th of September, a period of 10 days, and another one lasted from the 3d of September until the 25th of November, about two months and a half, or two months and 22 days. In the case where the sample was exposed for 10 days you get a total change of weight of 1.4 per cent, a total increase of weight. This also is saturated atmosphere due to a vessel of water being placed with a small lot of coal, but it was kept at ordinary temperature of course and absorbed a certain amount of oxygen from the saturated atmosphere; the change in weight which can be attributable to the oxidation of the coal in this case amounts to only 0.18 of one per cent; while with the lot of coal which is exposed to the atmosphere with an excess of oxygen for two months and 22 days the

(Testimony of David M. Folsom.)

total gain in weight is 2.12 per cent; the gain which is attributable to the oxidation of the coal is 0.76 of a per cent, and the oxidation of sulphide about 0.16.

Q. The total due to oxidation would be 0.92?

A. The total due to oxidation would be 0.92 per cent of the original weight. The other samples were placed in [1668—1603] a desiccator where the air was renewed; it was a tight glass vessel, where the air was renewed, but without any excess of oxygen, simply putting in fresh air as the oxygen was withdrawn from the containing vessel. The final gain in weight was 2.35 per cent and 1.58 per cent. The gain attributable to the oxidation of coal in one case was 0.59 and in the other case 0.38; the gain attributable to the oxidation of sulphides was 0.16 in one case and 0.10 in the other; that is, assuming that the sulphide was oxidized to sulphate and took up a water crystallization. The total gain which can only be attributed to oxidation of the sulphide of the coal amounts to 0.75 in one case and 0.48 in another case.

Six lots of coal were crushed and exposed to the atmosphere in porcelain vessels in a closed room where there would be no draughts, but placed in front of a large window through which the sun would shine; some of the first lot were moistened; and first they were moistened every day, and then later on they were moistened about once a week; these lots could be weighed, the whole dish could be weighed, and the known weight of the porcelain vessels subtracted would give the weight of the coal from time to time; after being exposed, the first one from the

(Testimony of David M. Folsom.)

25th of August until the 21st of November, about three months, the total gain was 0.55% ; the gain due to oxidation of the coal was about 0.17 and the oxidation of sulphide about 0.08. The total gain which could be attributed to oxidation being 0.25 of a per cent, a quarter of a per cent. That coal was just out in the ordinary open air although it was wet occasionally. A second and [1669—1604] a similar sample was exposed without wetting, just simply left right out in the air for a period of approximately three months, from the 25th of August to the 21st of November, and gained during that time 0.44 per cent. The gain attributable to the oxidation of the coal being 0.27 per cent, and to the oxidation of the sulphide about 0.07 per cent.

Q. What was the total in that case due to oxidation? A. 0.34 per cent.

Mr. ROCHE.—Q. Within what period of time?

Three months approximately, from August 25 to November 21. These two were crushed to 60 mesh, they were crushed very fine, as fine as dust. Of course, the crushing would tend to accelerate the oxidation somewhat. Here is one that was crushed to 10 mesh, two lots, one exposed from the 23rd of August to the 24th of November, and the other one from the 21st to the 24th, both about three months, and showed a loss of weight in the end, one of them losing in weight 0.6 per cent and the other one a loss of 0.62, practically the same. This loss was due to a drop in the moisture content, the original moisture in one being 2.8, and in the other 2.9, a drop in moisture of about one per cent. The loss in moisture was

(Testimony of David M. Folsom.)

greater than the loss in weight, and I attribute the difference to the oxygen absorbed from the moisture by the coal to the amount of 0.26 of a per cent in one case and 0.22 of a per cent in the other.

Mr. OLNEY.—Q. What was the total gain of weight due to oxidation?

A. The total gain of weight due to oxidation was 0.4 per cent in one case and 0.28 per cent in the other.

Mr. SULLIVAN.—Q. By the way, was all this fine coal [1670—1605] that was tested?

A. Yes.

Q. All powdered, pulverized?

A. Yes. The last two tests crushed to 60 mesh and exposed to the sun, moistened, and one without moistening; exposed from the 25th of August to the 25th of November; the coal that was crushed to 60 mesh did not lose as much moisture; it retained some of its original moisture, it didn't have as high moisture to begin with, it had $2\frac{1}{2}$ to begin with, and dropped to 1.9; there was an increase in weight shown there, and a very high increase in weight in this particular case due to oxidation or which could only be attributed to oxidation.

Q. What were the total amounts?

A. About one per cent attributable to oxidation; the total gain was 0.99 in one case and in the other case 1.03 per cent. This coal crushed in this way, in small lots, and wet repeatedly would oxidize more rapidly than coals in large piles except where additional heating took place.

Mr. OLNEY.—Q. Would heating add to the rapid-

(Testimony of David M. Folsom.)

ity of the process?

A. The heating increases the rate with which all oxidation takes place. That is one of the factors which controls oxidation.

Mr. SULLIVAN.—Q. What was the temperature?

A. Normal temperature. In the first two the temperature was increased by placing them in electric ovens, but everything after that was normal temperature, room temperature; in certain parts of the tests the weather was warm, up around 90, and at other certain [1671—1606] parts it was down around 50.

I visited Nanaimo at the request of counsel for the defendants, about December 23d, 1913, to examine, and I did examine, the scales on which the coal was weighed commercially. I was in company with Professor Parr.

(It was at this point explained by counsel for the defendants that the purpose of the testimony about to be elicited was to show the difference between weighing with an even beam and with an up beam and with a down beam, respectively, on the scales at Nanaimo.) We weighed a train of 20 cars, taking a little over half an hour to make the weighings. First we weighed them with the scale beam above the center, and not quite touching the bar at the top; then we changed the position of the slide on the scale beam until the beam was not quite touching the bar at the bottom; then we had the train of twenty cars run over the scales again, taking approximately half an hour for the determination of the weight and

(Testimony of David M. Folsom.)

weighed said cars using as nearly an even beam as we could obtain. The net weight of the coal when the train was weighed with the beam just below the top was 207,214 pounds, and when the beam was just free of the bottom, 209,566 pounds, a difference of 2352 pounds or a percentage of 1.13 of a per cent of the larger weight. The net weight of the coal weighed on the even beam was 207,666 pounds, being 1900 pounds lighter than the weight with the beam just off the bottom, or a percentage of .94 on the even beam weight. The even beam weight was 452 pounds heavier than the weight with the beam just approaching the top, or a percentage of .22%. The scales at Nanaimo are right on the ground, set in the railroad track. There is very little possibility of vibration. [1672—1607]

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Q. Did you make similar tests on the scales on the bunkers at Folsom Street? A. I did.

Q. State what you did there?

A. We took during the noon hour and ran a train of four cars over the scales five times, weighing the cars two at a time and noting the weight recorded with the beam just free from the bar at the top, just free from the bar at the bottom, and with the beam even; we did that five times.

Q. What differences did you find between the up-beam and the even beam?

A. We found a difference in both cases of an average of 42 lbs.

(Testimony of David M. Folsom.)

Q. What percentage is that to the weight of the coal?

A. I think I gave the wrong figure—what did you ask?

Q. I asked between the upbeam and the even?

A. Between the upbeam and the even beam a difference of 22 lbs. in one case and a difference of 23 lbs. in the other case.

Q. And what difference between the down beam and the even beam?

A. Between the down beam and the even beam a difference of 19 lbs. in one case, and a difference of 20 lbs. in the other case.

Q. Did you observe anything about the Folsom Street bunkers that would make it difficult to weigh accurately?

A. The fact that the cars are weighed coupled together makes it difficult to weigh accurately and—
[1673—1608]

Q. (Intg.) By the way, in that connection, in these separate weighings which you made of the same cars at Nanaimo did you always get the same weights on the same car? A. I did not.

Q. By how much did the same car differ in weight?

A. It differed in weight sometimes more than 100 lbs.

Q. I don't want the detail of all of that, Professor, but coming back to the bunkers here at Folsom Street, is there any other cause at Folsom Street which would make it difficult to weigh accurately?

A. The vibration set up by the trains as they are

(Testimony of David M. Folsom.)

running over the track in the ordinary process of handling the coal, and the vibration induced by the dumping of buckets of coal in the pockets over the bunkers, vibration which intensifies the difficulty of weighing and magnifies the difference between up and down beam; also the fact that the bunkers are open and exposed to the wind, and the scales are open.

Q. Did you make any observation as to what the difference would be between an even beam and a beam which was caught as it was going up, without being allowed to poise?

A. We made a number of experiments, first, in sliding along rapidly until the beam rose; we got a difference varying from 30 lbs. up to as high as 70 in some cases between an even weight and the weight when the slide was pushed rapidly until it rose.

Q. And what was the net weight of the coal?

A. About 12,000 lbs.

Q. What difference would there be, in your opinion, and according to your observation, between weighing with [1674—1609] an exactly poised beam and weighing with a beam that was caught as it was coming up, that is, weighing in a commercial manner.

Mr. ROCHE.—That is objected to upon the ground that that is not the subject of expert evidence. He has already testified to the actual experiments.

Mr. OLNEY.—The point of the matter is, if the Court please, that there is a difference between weighing with a beam which is just poised below the top of the scale and a weight which is taken as it is

(Testimony of David M. Folsom.)

testified here the weights are taken, with a beam coming up and being caught before it is permitted to poise, the weigher judging of the speed with which it is coming up.

The COURT.—Is that a matter that can be determined by actual observation?

Mr. OLNEY.—I think not. Well, it is a matter as to which you could not go down there and say in any particular case, your Honor, but it is a matter that a person watching it could form an estimate as to what the difference would be.

The COURT.—The objection is sustained.

Mr. OLNEY.—We note an exception. That is all.

(NOTE: The plates and tables used in connection with the examination of the witness Folsom were introduced in evidence as Defendants' Exhibit "SS" at a later point in the trial, viz., at the conclusion of the testimony of the witness, Albert Lockett, *infra*.)

Cross-examination by Mr. SULLIVAN.

I have had no occasion in the last 3 years to use any scales that weighed more than 200 pounds. During the time that I was employed with the Boston & Montana Mining Company, the engineering department to which I belonged, had supervision of scales which were used for weighing ore, copper, and all the materials around a smelter, which scales [1675—1610] ranged in size from 100 ton track scales to scales which weigh copper accurately, in about 5,000 pound lots. I was not the weigher there and I have never been a weigher employed about scales. I have never experimented with large scales in this way be-

(Testimony of David M. Folsom.)

fore, but I did watch the scale inspector at his work, because it was a part of my duty to see that he properly tested the scales and that they were in adjustment and in proper condition to weigh. I have never personally tested any scales for any purpose.

I have been employed by the defense since last July. My compensation is \$600 a month for the time engaged in actual work. I have been employed since July—probably 4 or 5 months, continuously. My expenses have been paid and the expenses of my assistants, in connection with the work that I have done for the defendants.

I graduated from Stanford University in 1902. From there I went for one year to the Columbia School of Mines. Then I came back to Stanford for one year and next went to the copper mines in Montana. I had had no experience in a coal mine up to that time. I was engaged at the smelter of the copper mines for 5 years and 3 months. About 400 tons of coal a day were brought there for fuel purposes. I had nothing to do with the burning of coal, but I inspected its storage. It was bituminous coal. We kept up to 4,000 tons in the yards there in storage at a time. A tally was kept showing the amount of coal that went into these piles, and of the amount of coal that went out too. These tallies were kept by the clerical force. On the first of every month I had to estimate the amount of coal in the pile for the purpose of striking a balance and [1676—1611] checking the weights of the smelter foreman. I made no analysis of coal there at all.

(Testimony of David M. Folsom.)

Q. Did you make a tally or a record of the amount of coal that had been taken from a given pile?

A. I made no such record, but such records were made though.

Q. You saw such records, did you?

A. Yes, sir, I saw them.

Q. Can you recall a single instance where a pile containing a given number of tons ever showed an increase of weight when the pile became exhausted?

[1677—1612]

After leaving the Copper Company I took up teaching at Stanford. Up to the time I went to Nainaimo, I had never been in a coal mine, and I did not go into a coal mine up there. The company for which I worked in Montana, was the Boston & Montana Mining & Smelting Company, Consolidated. My first position there was in the testing or sampling department. Then I became assistant engineer and afterward field engineer, acting as chief engineer in construction work. During part of the time I had charge of the ordering in of supplies to the smelter, etc. This place was at Great Falls, Montana—the company had an office there. Their main office is in New York. The only experience that I had in the matter of coal there was the ordering of supplies of coal and the measuring of stock. In January, 1910, as I said, I came back to Stanford, and I have been teaching there since in the mining department. We include in that department all kinds of mining, including coal to a slight extent. My duties in relation to lectures or instruction in

(Testimony of David M. Folsom.)

coal are very slight. I usually give two or three lectures a year on coal. Those lectures usually last one hour each. During the last three years I have spent about six hours lecturing on coal. I might add, however, that in the first year I was there I gave 6 weeks' lectures on coal, afterward dropping them because I did not think the students who were going to work on the Pacific Coast had much use for lectures on that subject. The material that I used in preparing those lectures was to a great measure derived from books. I have never had any practical experience in coal. It is not true that my knowledge of coal is [1679—1614] purely theoretical. It is derived from text-books, from talking to coal miners and engineers. It is the common experience which any engineer might have. I have never made an analysis of coal except I may have when I was a student. We made an analysis simply of best units contained in coal. I have never made an analysis of coal for the purpose of determining the amount or increase in the weight of coal by reason of oxidation or for the purpose of determining the moisture content of the coal, or for ascertaining the change in the weight of coal from any cause—except, of course, in the tests that I have described here in court.

I never in all my life previously made such analyses as those on the tables which have been shown here, which tend to show a certain reduction in the moisture content in coal, and a certain increase in weight by reason of the oxidation of the sulphur in

(Testimony of David M. Folsom.)

coal and a certain increase in weight by reason of the oxidation of the substance of the coal.

Q. Prior to your work shown upon these tables, here, had you ever made any tests of coal for the purpose of determining the increase or decrease in the weight of coal by reason of oxidation?

A. I never made any tests on coal, no, sir.

Q. Had you ever before in your life made any tests for the purpose of determining the moisture content of coal, or the loss by reason of the moisture content of coal, or gain by reason of the moisture content of coal?

A. I never made any tests to determine the moisture content; I made tests for the purpose of determining the change of weight in ore.

Q. But up to the present time you never have made any analyses or any tests for the purpose of determining, in the first instance, the amount of moisture in a given amount of coal; that is a fact, is it not?

A. If I understand the question.

Q. That is a fact, is it not?

A. It is. [1680—1615]

Q. Up to this time you never have made any tests with coal soaked in water for any given number of days, for the purpose of ascertaining the increase in weight of coal by reason of that soaking in water?

A. Not before these tests.

Q. Before these tests, you never had done it?

A. No, sir.

Q. Before these tests, had you ever made any experiments with coal for the purpose of ascertaining

(Testimony of David M. Folsom.)

the amount of moisture resulting from exposure to rain for a given number of days? A. No, sir.

Q. Or did you ever before these tests make any experiments for the purpose of determining the amount of moisture that would accrue by reason of a saturated atmosphere surrounding coal?

A. No, sir.

Q. And before these tests, did you ever make any experiment with pulverized coal for the purpose of ascertaining how it would behave under increased temperature? A. No, sir.

Q. Or under ordinary temperature? A. No.

Q. Who made these beautiful plats here, from first to last, do you know? A. Yes.

Q. Who made them?

A. The first one was made by a man by the name of R. W. Whittaker, and a man named Kenneth Pyle, two men worked on them; most of them were made by Pyle.

Q. Did you, with your own hand, make a single figure upon any one of these beautiful plats that have been presented here to the jury? A. Yes, sir.

Q. Which one?

A. I made a part of the last one. [1681—1616]

Q. Where is your work upon this?

A. I made part of the letters, I think.

Q. You mean Table 1 and Table 3?

A. Yes, I made those.

Q. What else did you do?

A. This last one was made very hurriedly, Mr. Pyle was sick, or I would not have touched this one.

(Testimony of David M. Folsom.)

Q. If Pyle had not got sick on the job, you would not have touched this one yourself?

A. No, sir, I would never have done that work.

Q. Did you make any of these figures here upon this table?

A. No, I didn't make any of the figures.

Q. So, then, the only work you did upon any of these plats here is the printed matter appearing upon the second column, showing the treatment to which this coal was subjected; is that so?

A. That is all the work that I did, yes, except that I stood over them and watched them doing it.

Q. That is, you did the treatment work here on the plat?

A. I think I am responsible for some of that.

Q. Did you suggest to Mr. Olney and these other gentlemen, when they called upon you to do this very fine work, that they ought to have employed some man who had had some experience in this kind of work, so that the work could be accurately done?

A. To the best of my recollection I told Mr. McCutchen when he came to see me that all I knew about coal was that it was black, and that it would burn under certain conditions, but that I was perfectly competent to make these tests that he wanted made.
[1682—1617]

In making these tests and analyses I had Mr. Bohart assisting me. He did the analyses and looked after the actual work shown on the tabulation relating to tests of oxidation. All of the other work was my own except occasional weights when I was absent,

(Testimony of David M. Folsom.)

which were taken and reported to me. The work that was done in my absence was done by H. W. Young, and it consisted of the weights taken in the various experiments between December 20 and December 27, 1913. There was one weight a day taken on two or three cans of coal which were exposed. No other parties assisted me in my experiments except the men employed for the manual labor.

The first of the experiments which I have described on direct examination began on August 14, 1913. I had, however, performed some preliminary experiments before that time on coals which had been sent to me at Stanford University, by the Western Fuel Company. These experiments began on July 19th, and there were some 20 or 30 of them altogether.

There were seven different kinds of coal sent down to me and I made three experiments on each lot for the purpose of determining the change in weight under ordinary atmospheric conditions,—to determine the change in weight from soaking the coal in water, and to determine the change in weight from sprinkling. The first experiment was for the first mentioned purpose. I have one sheet here which is a tabulation of the results secured therefrom.

Q. Will you let me look at it?

Mr. McCUTCHEN.—One moment, if your Honor please. We submit that counsel has not the right to look at it, he can examine the witness on it, if he wants to develop that experiment. There has been no evidence offered with respect to it here up to this time. We are perfectly willing that counsel should

(Testimony of David M. Folsom.)

go into it, but I do not understand that counsel has the right to [1683—1618] call upon the witness to surrender a paper which the witness has in his possession and, after counsel, has examined it, toss it to one side, as he did yesterday, when he called upon a witness for a paper. The experiment is not yet in evidence.

The COURT.—He may desire to offer it in evidence.

Mr. SULLIVAN.—We (may desire to) offer it in evidence.

Mr. OLNEY.—Exactly, your Honor. It seems to us it is not quite fair for counsel to take up a report, read it over, and then ascertain whether he desires to put it in, or not. He has to find that out on cross-examination, and not by means of an inspection of the document previously, and practically as if the witness were not on the stand.

Mr. SULLIVAN.—We submit, if your Honor please, we have the right to examine the report, and we have the right afterwards, if we care about it, to introduce it in evidence.

The COURT.—It seems so to me. The objection is overruled.

Mr. OLNEY.—We note an exception.

Mr. SULLIVAN.—Q. This paper purports to be a report of test No. 1, to determine the change in weight under ordinary atmospheric conditions, of date July 21, 25, July 26, 28, August 21. I ask you how long the coal which you received was subjected to ordinary atmospheric conditions?

(Testimony of David M. Folsom.)

Mr. McCUTCHEN.—I object to that, the paper is not in evidence, and counsel is cross-examining the witness upon it.

The COURT.—There is some force in that. If you want to ask him any question, he ought to have the paper in his [1684—1619] hand. I don't know what the paper is, but I suppose it discloses the facts you want to know.

Mr. SULLIVAN.—We will offer it in evidence as a part of the cross-examination of the witness. I will let the witness have it.

Q. What does that paper purport to be?

A. A tabulation of a test to determine the change in weight under ordinary atmospheric conditions, the change in weight of coal, small quantities.

Q. Don't you remember how long that coal was subjected to the ordinary atmospheric conditions?

A. One month.

Q. Between what dates?

A. Between July 21 and August 21.

Q. Between July 21 and August 21?

A. Yes, sir.

Q. What was the quantity of coal that was subjected to this test?

A. About 11 pounds; well it ranges from about 9 pounds up to about 12 pounds, as a maximum.

Q. State what kinds of coal were tested by you in accordance with that report.

A. These coals came to me labeled "Castlegate," "Comax," "Richmond," "Black Diamond," "Japan," "White Ash," and there was one sack on

(Testimony of David M. Folsom.)

which the label was lost.

Q. Was the sack on which the label was lost, was that Nanaimo coal?

A. I have no idea what it was; I am sure it was not Nanaimo coal, it was domestic coal, I think.

Q. What is the character of the coal, so far as coarseness or fineness was concerned—of that coal which you experimented with?

A. It ranged in size from lumps about 6 inches in diameter down to dust.

Q. A mixed coal, was it?

A. Yes. [1685—1620]

Q. What percentage of screenings was in the samples? A. I didn't screen any of this coal.

Q. About what quantity of screenings would you say were in the coal?

A. Oh, estimated at about between 15 and 40 per cent.

Q. Between 15 and 40 per cent; what do you call screenings?

A. Using the term that I used before, under one-half inch in diameter.

Q. You made the test, as I understand you; how did you make the test?

A. I simply placed approximately ten pounds of coal in a shallow pan, something like a milk pan, it was galvanized iron, I placed it outside on top of a table that is about 8 feet above the ground; the coal just about filled the pan.

Mr. OLNEY.—Q. How deep was the coal in the

(Testimony of David M. Folsom.)

pan? A. About 2 inches.

Mr. SULLIVAN.—Q. Did any rain fall during the time this coal was subjected to the atmospheric influences?

A. A little rainfall, .09 of an inch.

Q. What did you ascertain when you made that experiment, as to the loss or gain of that coal which you experimented with to show the result of the atmospheric conditions for one month?

A. I found that immediately after the rain, a day after the rainfall, the rain fell for two or three nights in small showers, between July 21 and the 25th; on the 26th of July, and on the 25th of July the coal showed a gain in weight, various samples, it ranged between .093 per cent gain up to .3 of a per cent gain. This coal was exposed until August 21st, and most of the samples had lost [1686—1621] its moisture.

Q. Now, as a matter of fact, during this one month's exposure, and notwithstanding the downfall of rain, all of this coal diminished in weight, did it not, according to your own report?

A. Yes, sir, but that is not a fair test—

* * * * * * * *

because the wind was blowing quite strongly down there during the month of August, and it blew out a good deal of dust from the pans, and I didn't pay much attention to that test, except that it indicated that coal was susceptible to change in weight.

Q. Is it not the same kind of wind that blows down there that blows over the Folsom Street bunkers up

(Testimony of David M. Folsom.)

here? A. Yes, sir.

Q. Is that the only reason you can give for the result of this experiment of yours?

A. Oh, no. It was a small lot of coal. Moisture would evaporate very quickly from a depth of two inches; it would evaporate from a depth of a foot, approximately.

Mr. SULLIVAN.—I will read this in evidence to the jury.

“TEST No. 1.—To determine the change in weight under ordinary atmospheric conditions.

Date.	July 21.	July 25.	July 26.	July 28.	Aug. 21.
					Weight Referred to Original
Name of	Original	Original			
Coal.	Moisture.	Weight.	Weight.	Grain. Weight.	Weight.
Castle Gate	2.58	4934 gms.	4996 gms.	1.5%	

Q. I will ask you if that gain of $1\frac{1}{2}$ per cent was not due to the fall of rain which occurred between July 21 and [1687—1622] July 25.

A. To the best of my knowledge.

Q. (Continuing reading:) “Castle Gate 2.58 4934 gms. 4996 gms. 1.5% 4951 gms. 4934 gms.”

Comax. It shows no loss at all, as I understand it; is that correct?

A. Well, you have the paper, I think that is correct.

Q. Just look at it. A. No loss at all.

Q. And shows a loss of 62 grams since the 25th day of July, does it not? A. Yes.

Q. Oxygen does not seem to have had much effect on that particular lot of coal, does it?

(Testimony of David M. Folsom.)

A. It is impossible to determine anything about that under the conditions of that test.

Q. Now, here is Comax coal, July 21, original moisture, 1.16 per cent; original weight, 5463 grams; July 25, 5587 grams, showing an increase of 2.27 per cent. That increase of 2.27 per cent was due to the downfall of rain, was it not, between July 21 and July 25? A. I take it that it was, yes, sir.

Q. And July 26, 5495 grams, July 28, 5468 grams, August 21, just a month afterwards, 5468 grams; is that a minus .03 of 1 per cent?

A. Minus .03 of 1 per cent.

Q. In other words, that shows a loss, does it?

A. That shows a loss, yes, sir.

Q. The next coal on the list is Black Diamond: Original moisture 9.72, original weight 4871; July 25, 4983 grams. That is after the rainfall, a gain of 2.31 per cent. That was due to rainfall, was it not?

A. I take it that it was.

Q. July 26, 4947 grams; July 28, 4887 grams. There was a slight gain there. Japan, original moisture, 2.24; July 21, original weight, 4162; July 25, 4214, showing an increase of 1.25 per cent in gain. That was due to rainfall, [1688—1623] was it not? A. I take it that it was.

Q. July 26, 4170 grams; July 28, 4162 grams; weight 4131 grams, showing a loss of minus .08 of 1 per cent; that is correct, is it not? A. Yes.

(The preliminary report herein above last testified to by the witness was marked U. S. Exhibit 164, and reads as follows:)

[U. S. Exhibit No. 164—Preliminary Report.]

TEST No. 1.—To determine the change in weight under ordinary atmospheric conditions.

Date.	July 21.	*July 25.	July 26.		July 28.	Aug. 21.	Referred to Original	
Name of Coal.	Original Moisture.	Original Weight.	Weight.	Grain.	Weight.	Weight.	Weight.	Weight.
Castle Gate	2.58	4934 gms.	4996 gms.	1.5%	4951 gms.	4934 gms.		
Comax	1.16	5463	5587	2.27	5495	5468	5468 gms.	.03%
Richmond	2.03	5579	5631	.93	6588	5579	5564	.03
Black								
Diamond	9.72	4871	4983	2.30	4947	4887		
Japan	2.24	4162	4214	1.25	4174	4162	4131	.08
White Ash	6.52	3726	3806	2.15	3763	37.10		
No. Name	2.72	4700	4788	1.87	4714	4696		

* .09 of an inch of rain fell between July 21 and 25th. August warm with low humidity.

TEST No. 2.—To determine the gain in weight resulting from soaking the coal under water.

Date.	July 22.	July 23.		July 24.	
Name of Coal.	Original Weight.	Wet Weight.	Gain.	Wet Weight.	Gain.
Castle Gate	6791 gms.	6972 gms.	2.66%	7018 gms.	3.34%
Comax	8438	8905	5.54	8913	5.63
Richmond	7949	8127	2.24	8158	2.63
Black Diamond	8230	9145	11.12	9215	11.97
Japan	7369	7554	2.51	7590	3.39
White Ash	7686	8416	9.50	8420	9.5
No Name	8603	8853	2.92	—	—

[1689—1624]

(Testimony of David M. Folsom.)

The tests made from July 21 to August 21, 1913, do not include a test on Wellington coal, except that one of the 7 varieties of coal that I used then was stated to be Comax coal. I made no test then on Wellington coal to determine the increase in weight thereof resulting from oxidation, nor have I made such a test on Wellington coal at any time. Nor did I a short time after this July to August test make any exposure of Wellington coal. I did not get any Wellington coal until some time in October.

Q. Does not the Wellington coal contain a less proportion of sulphur than any one of these seven different varieties that were exposed as shown by your report here during the month of July and August?

A. I only know the relation between the sulphur contained between the Wellington and the Richmond coal, it is approximately the same.

Q. Is not the sulphur content of Wellington coal less than of Richmond coal?

A. It is approximately the same.

Q. The chief cause of the oxidation of coal is due to a combination of the oxygen of the air with the sulphur of the coal, is it not? A. No, sir.

Q. Well, what is the chief cause of the oxidation?

A. The absorption of oxygen from the moisture by the unsaturated hydro-carbons that exist in the coal.

Q. Does not sulphur also absorb the oxygen?

A. Yes, sir. [1690—1625]

Q. Does not the sulphur proportionately absorb

(Testimony of David M. Folsom.)

more oxygen than the substance of the coal itself?

A. Proportionately it does, but there is not very much sulphur in these coals to absorb oxygen. High sulphur coals would take up more oxygen than the coal itself would absorb. In the Wellington and the Richmond coals the chief cause of oxidation would be the absorption of oxygen by the coal itself.

I am not a chemist by profession. It requires a man who is in practice and doing analytical work right along to perform accurately these analyses that I have described. I have not made analyses of coal myself. I have not done any analytical work of this kind. The analyses presented on the tables that I have shown in court were done by George S. Bohart, a professional chemist employed at Stanford University.

Q. Now, Professor, what is the actual cause of oxidation, as you understand it?

A. I am not sure that I understand your question.

Q. I say what is the cause of oxidation—how is it produced?

A. Oxidation is simply a combination of a substance with oxygen in chemical form; it is a combination such as takes place constantly. All sorts of substance absorb oxygen.

Q. The human body is oxidizing, is it not?

A. It is.

Q. Continually? A. Continually.

Q. The air that we breathe produces oxidation in the body, does it not? A. It does.

Q. And while a man who is suffering say loss

(Testimony of David M. Folsom.)

of weight, he is continually subjected to oxidation, is he [1691—1626] not?

A. He is; nevertheless, oxidation causes an increase of weight of the material oxidized.

Q. Does it cause an increase in the weight of a man who is oxidizing continually?

A. No, that may not be.

Q. So that a man who weighs 150 lbs. to-day, what would be the increase in weight by reason of oxidation a year from to-day, would he weigh 1000 lbs. more or less, that is, the oxidation continues to cause an increase in weight?

A. The man may not weigh as much, but the oxidation is causing an increase in weight, nevertheless.

Q. Assume that instead of a piece of coal, you take a man—he is oxidizing terrifically, is he not?

A. Yes.

Q. But at the end of the year the 150 lb. man may not weigh 135 lbs.; is not that so? A. Yes, sir.

Q. And is not the reason for that, Professor, that while the process of oxidation is going on there is coming from the body or from the coal, other gases which are formed in the body, and a certain amount of waste is going on?

A. That is true so far as the man is concerned, yes.

Q. Decaying vegetables are the result of oxidation, are they not? A. Yes, sir.

Q. And decaying animals are brought to a condition of decay by reason of oxidation?

A. Yes, sir.

(Testimony of David M. Folsom.)

Q. Take the case of a dead man, weighing 150 lbs., the process of decay is nothing more or less than a process of oxidation, is it?

A. That is what it is.

Q. Assuming the process of oxidation goes on in the dead man for a year, do you mean to say that at the end of the year that dead man will weigh more than 150 lbs.? [1692—1627]

A. No, I don't mean to say it.

Q. Now, as a matter of fact, does not the oxidation cause a decrease in the weight which ultimately results and a destruction of the man himself, or the separation of all the contents of the man?

A. It leads to the separation of the man, yes, but what causes the increase in weight of the chemical—the chemical substance in the man, increases in weight but are dissipated.

Q. Instead of a lump of coal just assume that you had a dead man who was decaying by reason of oxidation, and assume that after 60 days you pulverized that part of the corpse and made an analysis of it, would you come into court with a table showing an increase in weight resulting from the oxidation of that dead man?

A. It would be perfectly possible to come into court with such an oxidation provided that all the products of the oxidation were saved.

Mr. SULLIVAN.—You say it would be possible. Of course, we admit the possibility of it. Now, Professor, is it not a fact that while the process of oxidation is going on there is another process going on

(Testimony of David M. Folsom.)

at the same time which more than offsets any possible increase resulting from the oxidation?

Mr. OLNEY.—You refer to coal?

Mr. SULLIVAN.—I refer to anything in the process of decay resulting from oxidation.

A. That is too general a statement.

Q. Can't you answer the question?

A. If you mean in the case of material undergoing decay, such as a dead man, which you have used for the purposes of illustrating, or decaying vegetables, the oxidation of [1693—1628] the material causes an increase of weight, but the oxidation products are dissipated. Now, in the case of coal the oxidation is simply an absorption of certain hydro-carbons in the coal which are not saturated with oxygen; it is drawn in, absorbed from the air, absorbed by the body of the coal; there is no decaying of the coal in the same sense that there is a decaying of vegetable matter.

Q. There is a decaying, is there not—is there not combustion, a slow combustion—that is what oxidation is, is it not, a slow combustion?

A. There is a very marked difference in degree between the two. It might be termed a very slow combustion, but it is not a decay; there are no products given off.

Q. No products given off?

A. By this state of oxidation.

Q. Well, take the case of a cabbage head weighing about 10 lbs. Now, that is exposed to the air, that decays by reason of the oxygen of the air combined

(Testimony of David M. Folsom.)

with the elements of the cabbage; is not that so?

A. Yes, sir.

Q. At the end of six months there would be very little cabbage left, would there not?

A. Well, I could not say as to that.

Q. You could not say; you are not an expert on cabbage heads? A. Not yet.

Q. So in 30 days would that cabbage head increase in weight by reason of oxidation?

A. I could not say; I would have to make the experiment.

Q. Would there be anything of the cabbage head left after 30 days of oxidation?

A. I could not answer that question without making the experiment.

Q. Don't you know, Professor, that in the case of all [1694—1629] substances it is simply a question of time when oxidation destroys the substances themselves, or at least disintegrates the substance, causing the substance to vanish in air or in gases?

A. That is too general a statement for me to subscribe to.

Q. Now, take the case of a piece of coal, a lump of coal, Professor, weighing say 10 lbs., and assume that that is left in the open air left to the influences of the air for say a period of ten years, will you say that that lump of coal has increased or has decreased in weight?

A. It depends a great deal on the condition of storage.

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No. 2576

United States
Circuit Court of Appeals
For the Ninth Circuit.

Transcript of Record.

JAMES B. SMITH, F. C. MILLS and E. H.
MAYER,

Plaintiffs in Error,
vs.

THE UNITED STATES OF AMERICA,
Defendant in Error.

VOLUME VI.
(Pages 1921 to 2304, Inclusive.)

Upon Writ of Error to the United States District Court of the
Northern District of California, First Division.

Filed

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(Testimony of David M. Folsom.)

Q. Supposing it is exposed on a mountain side, where it gets all the oxygen that it is possible for it to get, and plenty of rain, plenty of snow, wouldn't that 10 lb. lump of coal decrease in size and decrease in weight by reason of the process of oxidation during a period of 10 years?

A. It undoubtedly would in 10 years go to pieces, but it might still have its weight.

Q. You say it might still have its weight. Wouldn't the volatile gases escape during that time?

A. Some of them might; a great deal depends on the composition of the coal; if it were a hard coal and was exposed there it would remain for a long period of time without any decrease in weight.

Q. Ultimately there would be no more left of that lump of coal than there would be of the cabbage head; is that not so, by reason of this oxidation?

A. Ultimately, [1695—1630] yes—if you carry your process on over a million or two of years.

* * * * *

Q. Did you ever read Bulletin 46 of the University of Illinois, by F. W. Parr and F. W. Kressmann? A. I am not sure, but I think I have.

Q. Do you remember this statement by Parr and Kressman: "Parr and Parker, working in the gases occluded in Illinois coal, found that two active processes are set up immediately upon liberation of the coal from the vein. The first is an exudation of hydrocarbons, consisting mainly of marsh gas (CH_4), and the second is an absorption of oxygen.

(Testimony of David M. Folsom.)

They found that after a period of two months practically all of the marsh gas had been liberated and, although the avidity of the fresh coal for oxygen was very pronounced, after a period of two months, active absorption of oxygen still took place." Do you recognize the fact that there is an exudation of marsh gas from all coal?

A. That is a well-known fact.

Q. That while the process of oxidation is going on and there is an increase in weight resulting from oxidation, there is another process taking place by which there is an exudation of hydrocarbons consisting mainly of marsh gas and the absorption of oxygen?

A. Yes, marsh gas is the principal one.

Q. Marsh gas has an appreciable weight, has it not? A. It has.

Q. And does not the exudation or release of the marsh gas, which is simply produced by the union of other gases, does not that reduce the weight of the coal? [1696—1631]

A. It does immediately upon its being mined, yes.

Q. It does reduce the weight of the coal?

Mr. OLNEY.—Immediately upon its being mined, is his statement.

Mr. SULLIVAN.—Q. Immediately upon its being mined. Didn't you hear me just read that for two months that process goes on, according to Parr; is that so?

A. Yes.

(Testimony of David M. Folsom.)

Mr. BLACK.—Oxidation.

Mr. SULIVAN.—No, I mean exudation of marsh gas.

Mr. OLNEY.—For two months after it is freshly mined. That is the statement there.

The WITNESS.—That is what I intended to mean by saying it goes on immediately. That is the process.

Mr. SULIVAN.—Q. Now, I refer you to page 60 of the same work:

“The absorption of oxygen by the unsaturated organic compounds referred to is accompanied by a gain in weight and at the same time by a rise in temperature; and the warmer the mass the more rapidly does the oxidation go on, so that the temperature is apt to rise to a dangerous extent. Concurrently with the oxidation of these products, is the oxidation of another set of organic compounds with evolution of carbon dioxide and water vapor, and this results, not in a gain, but in a loss of weight. Whether the mass as a whole gains or loses weight is, therefore, a question of the composition of the coal, but the loss in weight is in no case great.”

Do you remember having read that in this work of Parr?

A. I have read the book, I don't remember that, though. [1697—1632]

Q. Do you agree with this statement by Parr, that the loss in no case is great, and that while the gain by oxidation is going on, the loss by evolution of other gases is going on also, decreasing the weight?

(Testimony of David M. Folsom.)

A. Yes, sir.

Q. You agree with Parr in that respect, do you not? A. I certainly do.

Mr. Bohart weighed the coal for the tests which I have described showing the increase in weight from oxidation. I was sometimes present when he took the weights. He made the final weights to determine the increase at the end of the experiments. I was not then present. I suggested the methods by which the final analyses of the coal, concerning which I have testified, should be made, but I did not personally have a hand in said analyses. I knew Mr. Bohart could make analyses better than I could, otherwise I should not have employed him.

On August 14th, 1913, I was present at the bunkers at Folsom Street when a certain quantity of coal was dumped into the pockets. It is the first pocket that you come to inshore as you go up the stairs. The top dimensions of the pocket were 34 feet by 18 feet 8 inches. The greatest depth is 19 feet 9 inches, and there being sloping sides, one side is vertical for, I think, 15 feet. The capacity of the product is approximately 7,400 cubic feet. The type of coal used was Australian or Richmond. It was mixed, but for the most part coarse. I think there would be, on a rough estimate that I made in screening tests, about 15 or 20 per cent of fines. The pocket was not covered over with boards before I commenced the operation of dumping the coal in there. I had been on that bunker two or three times before, the last time the day before. My last previous [1698—1633]

(Testimony of David M. Folsom.)

visit to this particular pocket was July 30th. On the occasion of all my visits there were boards over one side of the pocket, but not over the other. On each side of the track from which the coal was dumped, the pocket was open. This pocket was about 15 feet from the scales-house. I think they were at that time discharging coal from the ships into the hopper on the south side. That continued all through the first tests. At the time of that test I was stopping here in San Francisco, at the Stanford Hotel. I was present all the time on the bunker while this 331,740 pounds of coal was being discharged into the pocket. There were four of us, I think, keeping tally of the weights—a Government man, a representative of the Western Fuel Company, one of my assistants and myself. That is to say, I checked the tally kept by my assistant. The government weigher's name was Freund. The regular employees of the Western Fuel Company were present while this pocket was being filled with coal. I am not certain but I do not think Mr. Mills was present. Mr. Miller was not. Mr. Mayer was in the scales-house. The assistants commenced pouring water onto this coal the first night. I was not present during the night-time. I do not have personal knowledge except from what they reported to me of the quantity of water that was poured on the coal or how long they were in depositing the water in the pocket. Somebody was on guard all the time during the day to see that nobody deposited any water into this pocket. I know that no water was

(Testimony of David M. Folsom.)

poured into this pocket by a hose during my test. My man guarded against that. Tally was kept of the number of cans of water that was sprinkled on the coal by the men who did the sprinkling,—Herbert Stone and L. C. Decius. The capacity of each can was 5 gallons. 2,000 gallons of water in all were poured upon the coal; 500 gallons a night for four nights. A [1699—1634] gallon of water weighs $8\frac{1}{3}$ pounds approximately. During those four days there was no handling of that coal. The bottom of the pocket was kept as closed as it possibly could be. They did not resort, however, to any means to keep the pocket watertight. I saw the pocket before the experiment started. The bottom had been swept clean. There was canvas in the bottom. No new boards were put in, however. The chute leading to the pocket was kept tight just in the ordinary way. I was in the scales-house when the coal was taken out of the pocket. This scales-house is located directly across the street from the bunkers. I was at the bunkers when the first cart was drawn; I then went across to the scales-house and watched the weighing. The scales-house is removed about 200 or 300 feet from the chute leading to that particular pocket. It is across the street from the bunker and south of the north side of the bunker. I could not see from my station in the scales-house what coal was going into the carts from this particular pocket. In answer to the question whether I have personal knowledge that this particular coal that was weighed came from this particular pocket I would say that I

(Testimony of David M. Folsom.)

had a man watching to insure that this was done, and his statement to me is the only knowledge that I have in the premises. The man was Decius in the morning; he was my assistant and was there for that purpose. I saw some 2 or 3 loads of coal myself come out of that pocket. I saw 126 loads of coal weighed that I claim came out of that particular pocket. Mr. Miller, an employee of the Western Fuel Company, did the weighing of these 126 loads. I was about 2 feet from the scales-beam. I personally observed the poise of the scale each time, but I don't remember making a note of it. The process of weighing started at about 9 or 9:30 in the morning and was finished, I think, about 3 in [1700—1635] the afternoon, there being an hour off for lunch. The loads were brought to the scales in carts. The gross weight of the cart was 5,600 pounds, with a tare of about 2,700 lbs., the net weight of coal being approximately 2,800 pounds. I was present when the tare of the carts was taken. Six different carts were used. We took the tare of each cart. I have the memorandum here. The first cart had a tare of 2,860 pounds, the second of 3,060, the third of 2,720, the fourth of 2,890, the fifth of 2,900 and the sixth of 3,060 pounds. The gross weights of the carts were from 5,610 up to 5,800 pounds. For the purpose of ascertaining the net weight of the coal I deducted the gross weight of the carts. I took those according to the regular tally sheet forms which they have down there. Taking cart Number 1, we added five trips of that cart and subtracted

(Testimony of David M. Folsom.)

from that five times the tare weight and that gave the total net weight for the five trips. We repeated that for each one of the six carts, and added up the 30 net loads. That process we repeated each time. We took all the net loads. Every wagon that came to the scales was weighed. I have a list showing the weight of each particular wagon and the deduction to be made on account of the tare. My table shows it. The table does not show the tare for each of the 126 carts, but it shows the gross for each of them, and the tare can be subtracted. I think the driver was not weighed with the cart. As I remember it, he stepped off the cart each time and stood on the side, but I could not be positive. I watched the weighing at the time, however, and I noticed that the weights were accurately taken.

On August 18th or 19th, we repeated the experiment. The coal was watered in the same manner. I was not present when the watering was done. My knowledge of the fact that the [1701—1636] coal was watered is based upon the reports of the men who carried out my instructions. Of course I only know that they carried out my instructions from their own statements. Very coarse coal was used in the second experiment. It was Australian coal. About 2000 gallons of water were deposited thereon. That coal was hauled out in 120 loads. My statement shows the gross weight of the coal in the carts. The tare of the carts was taken but once at the beginning of each test. I am very sure that the man was not on the cart when the gross weight was taken, but I

(Testimony of David M. Folsom.)

could not be absolutely positive. I know that the same driver was retained on the cart during the entire day. I was not present all of the time when the second lot of coal was weighed out. I was on hand I think at the close of the test. One of my men supervised that second weighing out, and the figures I have given the jury are based upon his report to me. I have testified positively that 323,170 pounds of coal went in during that experiment and that 329,938 pounds came out,—because I have absolute confidence in the man that I put there to supervise the weighing. That was Mr. Stone, a graduate of Stanford University. He and Mr. Decius did the sprinkling. I assume that they carried out my instructions without knowing it to be a positive fact. They started in to fill the bin on August 18th, and it was not filled until August 19th. They took the coal out on the 23d of August. The water was poured on the coal for four nights beginning August 19th. The day following the last watering they commenced to take the coal out. In the case of the first experiment they commenced taking the coal out of the pockets on the morning of the 18th of August, after four nights of soaking. Something over 4,000 pounds of water had been poured on the coal the night before the day on which it [1702—1637] was taken out. That would be about two short tons. That was the procedure followed in the case of both experiments. Despite that fact there was no visible moisture on the surface of the coal when it came to the scales-house to be weighed. That is very easily explained.

(Testimony of David M. Folsom.)

The day that the coal was weighed was a very warm day—about 76° in the shade down there and there was a strong north wind blowing and any moisture would evaporate very quickly from the surface. Furthermore, water disappears very quickly from the surface of coal anyway. I have had a can of coal covered with water and three hours afterward the surface of the coal would appear perfectly and absolutely dry. The date on which I commenced taking coal out from the pocket for weighing in the case of the first experiment was August 18th, and in the case of the second experiment August 23d—1913 in each case. The 18th of August had a temperature of 70° to 76°, with a slight breeze. August 23d was the same kind of a day—we all commented on that fact. The result of turning over and handling coal is to cause a loss of weight by evaporation. There was, perhaps, not more than 10% of fines in the coal used in the second experiment. I think that the coal that was used in these two experiments was eventually sold to the retail trade, but I do not know. I think Mr. Miller told the man to take it down to the end of the dock and dump it out and let it dry out, but I did not pay much attention to that.

Referring to the tests illustrated on my plats on Richmond coal taken from the bunkers, I will say that I took the coal out and shipped it to Stanford University. I took about 1000 pounds and placed it in the Metallurgical Laboratory at Stanford University. I did not sign any memorandum showing the quantity of coal which I took. I did not weigh

(Testimony of David M. Folsom.)

that coal, but I handled [1703—1638] it all at Stanford. In that particular test I used 57.2 pounds. That coal had 22% fines at the end of the test, having been put through a $\frac{1}{2}$ inch mesh. The can was 12 or 13 inches in diameter and about 24 inches high. It was a round can, with about 20 holes in the bottom, over which a single layer of canvas cloth was stretched. I am not familiar enough with canvas to say whether it was coarse or fine. The canvas did not come up on the sides of the can. The can was about twice as high as it was wide. Before putting in the coal I wet the can and the canvas and weighed them together. The can was filled with coal to within an inch or two of the top and was put in just as it was received from the city. I weighed the whole thing, can, coal and canvas for the gross weight. It showed 65 pounds, 6 ounces. The net weight of the coal was 57 pounds 4 ounces. I sprinkled the can with three pounds of water at 9:30 A. M. September 23d, and that increased its weight about 3%. 48 hours after the can was sprinkled it retained 1 pound 2 ounces of the 3 pounds of water that was added. The weight on September 25th at 11:30 A. M. was 66 lbs. 8 ounces, net 58 lbs. 6 ounces. I did the sprinkling and the weighing at the end of the 48 hours. At that time I weighed the canvas, can and coal together; in fact, the coal was not taken out of the can from the beginning to the end of the test. I commenced soaking the coal on September 25th, having weighed it just before. I put in a pail full of water—2 or 3 gallons. I weighed the coal next on

(Testimony of David M. Folsom.)

September 25th. Then I gave the coal another soaking on October 2d. From the beginning to the end of the experiment I suppose it had 7 or 8 soakings and at the end it weighed not quite 60 pounds. After a rainfall it weighed 60.2 pounds net. The net increase in weight of the coal after it got these several soakings and was exposed to rain during the rainy season was about 3 pounds. [1704—1639]

Q. That is all it gained?

A. Yes, sir, that is all it retained.

Q. Why didn't you, if you wanted to make a fair test, take this coal out every day and shovel it around and put it back again and withhold about 2 or 3 of these sacks from it and then let it dry out and then come into court and say, here is a fair test, gentlemen, why didn't you do that?

Q. This test was intended to be as fair as possible. It is far more important to me to get at the facts of this thing than anything else, entirely aside from this case. I intended to publish the result. I was after information. Coal in storage is not handled during the time it is in storage.

Q. Why didn't you handle this coal to the same extent as the coal in question always is handled, that is, the coal of the Western Fuel Company, why didn't you take it out of the can and after letting it soak, why didn't you put it out in the air to dry a little while and then put it back, and so on and so on, instead of giving it half a dozen soaks and then letting it be exposed to the rain for a couple of weeks, and then weighing it?

(Testimony of David M. Folsom.)

A. As I stated in my direct examination, this was intended to represent what would take place in coal in storage and approximately in the center of the pile, or below the surface of the pile it would not be disturbed.

Q. You know that coal in a pile is subject to the winds that blow, and that coal in piles loses a great quantity of weight by reason of evaporation?

A. I know that heat has an effect on it.

Q. Don't you know that heat in a pile of coal will cause steam vapor to rise from the center of the pile?

A. Yes, and it is a well-known fact that this moisture [1705—1640] retained in the coal in the center of the pile comes out as sweat.

Q. Didn't you ever see vapor arising from the pile of coal showing that the very heart of the coal itself is undergoing combustion to some extent?

A. No, I never have except in a pile of coal actually on fire.

The next test was with Wellington coal, weighing at the outset 61.9 pounds, and after the soakings and exposure running 64.6 pounds. I soaked that coal 5 times and it was subjected to rainfall. The last soaking was 26 days before the weight was taken, and we had had seven days of dry weather. The last rainfall was on the 29th and it was taken in on the 6th. We soaked the contents of the can repeatedly and put in as much water as the can would hold. The coal remained in the can all this time and it was not shifted or changed about. The cover was kept on until November 24th, and after that removed, the

(Testimony of David M. Folsom.)

final weight being taken on December 6th. The cover was kept on for the purpose of preventing the loss by evaporation of any of the contents of the can, of seeing how much water would remain in the coal under these circumstances, these repeated soakings. I did the weighing myself in the Stanford laboratory. The bin in dimensions was 4 feet square and 5 feet high, with a flat bottom. There was no canvas in the bottom. The fine coal did not get into the meshes of the canvas used in the other experiments and retard the flow of water to any great extent. The water would run through as quickly at the end of the test as at the beginning. I am aware that in the desert they carry water in canvas bags, but this canvas did not hold water at all. It was used for filtering purposes. There was no tin or metallic lining in the bin. It was made of rough undressed lumber. I did not weigh the bin at all. 4200 pounds of coal were put in that bin with 12% screenings. The coal was weighed in sack by sack on ordinary scales close by. It was exposed to the weather from November 11th until January 2d. During that time 9.67 inches of rain fell. [1706—1641] This made about 830 pounds of water, a cubic foot of water weighing 62½ pounds. The coal in that period was handled once on December 16th to be weighed, being taken out of the bin. Each sack was separately weighed and the tares taken. A good deal of the coal at that time appeared to be dry. About 3 inches or 300 pounds of water had fallen, but we had had no rain for 16 or 17 days. The coal looked so dry when we weighed

(Testimony of David M. Folsom.)

it out on December 16th that one of the boys working there thought there would not be more than 10 pounds of water in it. The fine coal showed some moisture, however; the lump coal very little. The bin was exposed in an inside courtyard, practically closed on three sides. The coal when weighed out on that occasion showed a gain of 40 pounds. The exact weight as it went in was 4118 and when it came out 4160 pounds. I made no estimate then of the weight of the screenings that were damp. The coal was then put back and the rain fell again, and the final weighing was on January 2d, 6 inches of rain having fallen in the meantime. When I put the coal back on December 16th, I also added in some coal that had been in a small box alongside, exposed to the same conditions, so that we put into the box on this second occasion 4241 pounds and 12 ounces, and at the finish of the experiment it weighed 4289 pounds and 8 ounces. The lump coal appeared a little more moist than on the occasion of the first weighing. There was fine coal sticking to the lump coal this time. The percentage of gain in this coal in weight between the first weighing and the last weighing after 6 inches of rain or about 900 pounds of water had fallen upon it, was 1.13%.

I went to Nanaimo for the purpose of testing the scales there in December, 1913. Professor Parr accompanied me. When the scales were tested, the weigher, Mackenzie, and [1707—1642] Mr. Stockett were present. We conducted experiments on the scales as we found them.

(Testimony of David M. Folsom.)

Redirect Examination by Mr. OLNEY.

I was engaged to make these tests in the following manner: Mr. McCutchen called me up on the telephone and came out to see me by appointment. He said that he wanted to see Dr. Branner, and to have him make a series of tests on coal. I told him that Dr. Branner was absent in Brazil. He then asked who was in charge of the geology and mining department in Dr. Branner's absence, and I told him that I was and promised that I would make the tests for him, and I was then engaged to do that.

Q. Now, in regard to this first experiment, where it appeared that there was a loss of weight between the time the experiment was commenced and the time it was finished, will you state how deep the coal was in the pan at the time of that experiment?

A. About 2 or 3 inches in depth.

Q. Was the pan exposed to the open air, or not?

A. It was all the time.

Q. What is the difference in conditions between a pan of coal exposed that way and to that depth, and the conditions as to evaporation and otherwise which you find in a storage pile?

A. This pile would represent the exact conditions you would find just at the surface of a pile in storage, or just at the top of a bunker of coal, where the air [1708—1643] circulated freely, where the dust could be blown either into the pan or the coal dust blown out; that represents the condition just at the surface; it is entirely different from the condition in the interior of a storage pile of coal, or the interior

(Testimony of David M. Folsom.)

of a bunker, where there would be no opportunity for the air to circulate.

My first tests were made upon Richmond coal because I could not get any samples of Wellington coal at the time, there being a strike on at the mines. Afterward, Wellington coal was sent down specially for me. Aside from the tests on oxidation all the figures in the tabulations which have been put in evidence are my own figures, barring only the weights which appear between December 26th and December 30th. The figures appearing on the oxidation tables are those which were given me by Mr. Bohart.

Q. You were questioned about oxidation in the case of organic substances, such as vegetables, flesh, and things of that kind, and an analogy was attempted to be drawn between oxidation in a case of that sort, and oxidation in the case of a mineral substance, such as coal; will you state if there is any analogy between them, or if there is none, what the differences are?

A. There is a certain analogy, at the same time there is a great difference in the products; the products of an organic substance are entirely different from substances of an inorganic nature, or a substance like coal, which is of organic origin, but through different processes has been converted into an inorganic substance; that [1709—1644] is, organic oxidation produces gases which are easily dissipated and driven off; oxidation of inorganic substances creates usually a new mineral constituent.

Q. Is that new mineral constituent in the form of

(Testimony of David M. Folsom.)

a gas which is driven off, or is it in the form of a solid, which remains as a part of the original?

A. It may be either in the form of a gas, or in the form of a solid, very often both things result.

Q. What is the condition with regard to coal, say coal at a normal temperature?

A. With coal at a normal temperature, the oxygen is simply absorbed until the hydro-carbons are saturated. The exact composition and the exact process is not known at all, but there are certain unsaturated hydro-carbons in coal and in oil, which, when they have a chance, and are exposed to the oxygen, take up oxygen, first very rapidly, and then later very slowly.

Q. Now, in regard to the giving off of gases by coal, and particularly marsh gas, at what time does that take place in the process of the handling of coal?

A. It takes place just after the coal is broken out of the seam.

Q. Is it something that comes to an end very quickly?

A. As compared with oxidation, yes, very shortly.

Q. Take Australian coal, for instance, which takes a month or more to bring here, would there be any loss, any appreciable loss, at all, in weight, from the giving off of gases, and particularly marsh gas, after the coal arrived here?

A. I don't think there would be any at all, any appreciable [1710—1645] loss.

Q. Would the process of oxidation go on after the coal had arrived here?

(Testimony of David M. Folsom.)

A. It would. These tests were made on Richmond coal.

Referring now to the bunker test that I made, the hopper was not over any part of the bunker in which I placed the coal. I had partitioned off the north side of the whole bunker and the coal was dumped in from the north track. It would not have been possible to dump coal into that hopper from the tracks on the south side. My assistants in this test were Mr. Stone, and Mr. Decius, both students at Stanford University, and since that time graduates. Mr. Decius is now employed by the Argentine Republic. Mr. Stone is at the University. We did not take any precaution to keep water from draining through the coal on the bunker, but simply to insure that no coal should be drawn off during the test.

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Q. You have been cross-examined here about tests which were made by soaking the coal; did you make any tests outside of this test with the bin, to which you have testified, where the coal was not soaked, but was merely exposed to the weather?

A. Yes, sir, I made a number of those tests.

Q. And did those tests show the same results?

Mr. SULLIVAN.—We object to that, your Honor, as not redirect. [1711—1646]

The COURT.—Oh, we can't let this matter be reopened now.

(Testimony of David M. Folsom.)

Mr. OLNEY.—I am not endeavoring to reopen it, your Honor—

The COURT.—We never would get through in a thousand years.

Mr. SULLIVAN.—This is not proper redirect examination.

Mr. OLNEY.—If your Honor please, they picked out certain tests, here, tests of soaking the coal; running along with them, were tests where the coal was exposed to the weather; I simply want to bring out the fact that these tests were not confined to the tests of soaking the coal, that there were other tests where the coal was simply exposed to the weather.

The COURT.—The objection is sustained; you made the case you desired to make when you put him on the stand.

Mr. OLNEY.—We take an exception.

Referring to the experiment on coal in a bin at Stanford, the coal when put back the second time on December 16th was wet, and, therefore, the gain of 1% shown from that time on to the conclusion of the test was gain on coal already wet.

[Testimony of George S. Bohart, for Defendants.]

GEORGE S. BOHART, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. OLNEY.

I am a chemist and reside at Palo Alto, California. I am a graduate of Stanford University and am now instructor in chemistry in that institution. I am acquainted with Professor Folsom who within the

(Testimony of George S. Bohart.)

past seven months gave me certain samples of coal to analyze. I did so analyze them and correctly reported the results to him. [1712—1647]

Cross-examination by Mr. SULLIVAN.

I am thirty years of age and graduated from Stanford University in 1911. I have been practicing my profession as a chemist as instructor in the department of chemistry at Stanford for 3 years, and, prior to that time I studied chemistry for 5 years. I have never been in a coal mine and I never analyzed coal except in connection with these tests for Professor Folsom. However, the analysis of coal is a matter which anyone qualified to do chemical analysis can do successfully. Some of the elements in coal are carbon, hydrogen and oxygen, a small percentage of nitrogen, certain volatile matters such as methane, ethane, a little carbon di-oxide and water, and there are sulphur and iron to some extent in coal. In this coal that I examined there were certain amounts of iron and sulphur and no doubt to some extent present as a pyrite and to some extent as marcasite which latter is very similar to pyrites. [1713—1648]

[Testimony of Henry Rosenfeld, for Defendants.]

HENRY ROSENFELD, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. KNIGHT.

I was for about 23 years prior to 1903 engaged in the business of importing and handling foreign coals at San Francisco under the business name of John Rosenfeld Sons. We used among other bunkers and

(Testimony of Henry Rosenfeld.)

yards those of Mission Street, East Street, Bryant Street, Brennan Street, Front Street, Green Street, Spear and Howard Streets. We did not use the bunkers at Folsom Street. We handled British Columbia, Australian, English, Scotch, Welsh anthracite, several brands of Eastern anthracite, blacksmith, Japanese and some Alaska and China coals.

I am familiar with and handled in large quantities coal from British Columbia. It has been the practice to invariably screen all coal prior to shipment at Nanaimo. The proportion of screenings when the coal reached this port would vary, but the average would be, as I remember it, approximately 35% at the time when it was unloaded. Australian coal also is screened before shipment. I should say that about 30% of Australian coal is screenings when it reaches this port, the exact percentage depending, however, on the brand of coal. It runs anywhere from 25 to 35% as it is discharged from the ship's tackle. The percentage of screenings which is caused by the handling of coal each time depends on the brand of coal, that is, whether it is hard or brittle. I should say, for instance, with respect to the Nanaimo coal, that after it is once discharged into the bunker [1714—1649] or yard until it is again handled, its increase in screenings is from 5 to 10%, and with respect to the Australian coal from 3 to 7 per cent.

My firm was engaged in coaling steamers from barges. I believe some of these barges are still in use by the Western Fuel Company, at any rate we

(Testimony of Henry Rosenfeld.)

used the same type of barge that they use. As to our method of loading barges and of keeping track of the weights of coal that went into the barges, I would say that some coal was loaded direct from the steamers that brought the coal in. In that case, the coal was weighed by the custom-house officer either on the deck of the vessel, or was loaded from the bunkers and then off shore. At other times we loaded from the yard by hoisting the coal onto the bunkers and discharging into a barge. At times too we loaded by teams. During a portion of the time when I was in business the defendants, Mills and Mayer, were in the employ of my firm. Mr. Mayer was weigher and Mr. Mills superintendent of the barges. They remained with us until they were employed by the Western Fuel Company when we went out of business.

So far as my memory serves me it was our experience that the barges ran over, although there were cases on which they were short. Generally, however, there was an overage rather than a shortage.

Our firm handled coals in storage at the bunkers on Mission Street, East Street, etc., and kept coal on hand in that connection always in large quantities, say, from 5,000 to 25,000 tons at a time. Whether the coal so yarded overran, depended entirely on the brand. Most coals would overrun but some of them did not. For instance, eastern [1715—1650] anthracite is always short, and some kinds of English and Scotch coals would sometimes be short. The

(Testimony of Henry Rosenfeld.)

Nanaimo, Japanese and Australian coals would always turn out over. I would estimate this overage as between 2 and 3 per cent. As to the importing of coal, our experience with reference to Japanese and Australian coal was that the custom-house weight at this port was less than the bill of lading or invoice weights. That is to say, there would be shortages. We were at that time importing coal from our own mines in British Columbia. I could not give an accurate estimate as to the amount of the shortage because it varied greatly. Sometimes it would be 1 per cent—sometimes as much I should think as 4% short. Of course, I am speaking from memory of events ten years ago. My firm and I went out of the coal business in 1903, and have not been interested in that business since, either directly or indirectly.

Cross-examination by Mr. SULLIVAN.

The records of John Rosenfeld Sons at that time were destroyed in the fire, and there are no records extant concerning our coal business. There is not, so far as I know, a scrap of paper on that matter. The records were kept at the time of the fire in an office on Montgomery St. We turned over no records to the Western Fuel Company when we sold out to them. I am testifying solely from my recollection.

In answer to the question: What is merchantable coal, so far as the proportion of screenings is concerned, I will say that that depends on the brand. I would call Nanaimo [1716—1651] coal containing 35 per cent screenings merchantable. That is

(Testimony of Henry Rosenfeld.)

not the kind of coal that is sold to householders. It is sold to ships. Nanaimo coal was unloaded here with 35% of screenings. In the course of transfer into the bunkers it would increase this percentage by 5 to 10 per cent. I don't know how much the screenings would be increased in the course of the transfer from the barges into liners because it never was screened then. The screenings resulted from the handling of the coal. I should think that perhaps 5 or 10 per cent more screenings would be produced in loading from barges into liners. I think our coal contained from 45 to 50 per cent of screenings when it was thus sold into Pacific Mail S. S. Company liners. I do not know that the Pacific Mail S. S. Company, or any other steamship company would reject such coal. We had nothing to do with the Folsom Street bunkers when I was in the coal business.

We owned in the mines at Nanaimo the same that are now controlled by the Western Fuel Company, which also has some new mines. We owned the Number One Mine. When we were in business and coal was shipped from Nanaimo it was weighed there and consular certificates or invoices were signed by the consul and our men at the mine appeared before said consul and declared as to the cargo of coal upon each shipment. I could not tell you whether the coal at the mine was weighed on a rising, even or low beam. I had no knowledge of that matter whatsoever. I was never up there while they were engaged in weighing. I never went to the mines at Nanaimo.

(Testimony of Henry Rosenfeld.)

The consular invoices or bills of lading were sent to our office in San Francisco. The cargo of coal was weighed in San Francisco by the custom-house weigher. As far as I [1717—1652] recollect, the latter's records always, or rather usually showed a shortage, averaging from 2 to 4 per cent. Four per cent was not usual, however. In answer to the question whether I can at the present time mention a single cargo of coal that ever came to San Francisco to my yard where the shortage appeared to be from 2 to 4 per cent, I would mention the steamer "Peter Jebson," from Nanaimo, somewhere between 1896 and 1899. I think she had over 4,000 tons of coal aboard. I know a great many vessels that we loaded ran short, but I could not mention the percentage on each. I cannot at this moment, when 10 years have intervened, mention any other specific ships on which the shortage exceeded 2%. Some of the boats bringing coal from Nanaimo were owned by John Rosenfeld Sons, and more were chartered by us. We chartered the "Peter Jebson" first and then owned her. I could not say whether when the shortage occurred she was owned or chartered. We paid freight, when we chartered vessels, on the out-turn weight. We always did that. For instance, if we had chartered the "Jebson" and the invoice showed she had 4,000 tons aboard, and the weight taken by the custom-house officer showed 3940 tons, we would pay the custom-house authorities duty upon 3940 tons, and we would pay freightage also on that number of tons.

In answer to the question: If that shortage was an

(Testimony of Henry Rosenfeld.)

honest shortage would the custom-house lose the duties and the owner of the vessel also lose by reason of the shortage, I would state that the shortage, if there was any, was an honest shortage. I cannot tell you how many vessels John Rosenfeld Sons owned at that time. We used to buy them and sell them so that they were in the course of change all the time. I have made no investigation whatever for the purpose of enabling [1718—1653] me to testify to these percentages. Whether or not there is any record in existence by which my testimony can be contradicted I do not know. When we sold out to the Western Fuel Company in 1903 we sold out completely, retaining none of the assets of the coal business. For a short time we had some interest in the stock of the Western Fuel Company. We were not interested in the Western Transport Company at any time. We were interested in the Cumberland Coal Company once before selling out to the Western Fuel Company. Dunsmuir and John Rosenfeld Sons were large competitors. Dunsmuir owned the Folsom Street bunkers. We never had any interest in them whatever.

We used to supply coal to the Pacific Mail S. S. Company. The contracts contained no provision whatever as to the quantity of screenings that such coal should or should not contain. The contracts did not call for average coal. We were not restricted as to the amount of screenings we should give to the Pacific Mail S. S. Company, but if we had not given a good coal it would have been rejected.

(Testimony of Henry Rosenfeld.)

They never, so far as I know, rejected any of our coal. The contracts contained no specification whatever as to average coal, but it is understood that when you sell coal you are supposed to give a good average coal. I consider that it depends upon the brand of coal, what an average quality of screenings should be. In Nanaimo coal 35% would be a fair average. Our contract was for the delivery of coal on the vessels. The coal as so delivered would be 45 to 50 per cent screenings. Our coal was always screened at the Nanaimo mine over, I think, a $\frac{3}{4}$ or 1 inch mesh. The Australian coal was likewise bituminous, but not similar in quality to the Nanaimo coal. The Australian coal [1719—1654] contains less screenings and is somewhat harder and has perhaps a little more fixed carbon. There were less screenings in some of the Australian coals than in the Nanaimo coal. That was certainly true of the brands of Australian coals that we handled, but of course there are some Australian coals that contain as much screenings as the Nanaimo coal. None of the Australian coals that we ever handled contained more screenings than the Nanaimo coal. The chief brand of Australian coal that we handled was Wall's End, mined at Newcastle. We usually bought our Australian coal delivered here in San Francisco. We paid for it on the outturn weight, as weighed by the custom-house officer. The percentage of shortage in that coal would be from 1 to $2\frac{1}{2}$ per cent on an average.

I attribute the shortage in coal from Nanaimo to

(Testimony of Henry Rosenfeld.)

San Francisco in some measure to evaporation. Also to the fact that at times the vessels were not cleaned out so the coal would get down on the knees and bilges of the vessel. Possibly also the coal was not always weighed as carefully up at Nanaimo as it was here. Furthermore, coal would dry up more or less. I think it was very seldom, if ever, that we had an increase in weight of a cargo of coal coming from Nanaimo to San Francisco.

I do not think the Australian coal contained the same degree of moisture as the Nanaimo coal. It took the ships from 45 to 110 days to get from Australia to San Francisco, the vessels crossing the equator once, the greater part of the trip being in hot weather. I could not say whether that made a great deal more evaporation in the Australian than in the Nanaimo coal on the respective voyages to San Francisco. I do not think it is a fact that the evaporation in the Australian coal produced a much greater shortage than in the Nanaimo coal on [1720—1655] trips to San Francisco. All I know, of course, is how the coal turned out on weighing here. I was not on the vessel.

The Jap coal is soft like the Nanaimo coal. We handled very little Japanese coal, but I believe there was as much or more shortage on that than on the Nanaimo coal, I am not positive. I admit that so far as the Japanese coal is concerned, my recollection of the facts is hazy, but so far as the British Columbia coal is concerned, I recall a great deal more about that than about other coals, because we were in busi-

(Testimony of Henry Rosenfeld.)

ness and handling it so long.

I should think that we sold 10 per cent of the coal from Nanaimo to the Pacific Mail S. S. Company. The rest of the coal was sold to the trade generally in San Francisco and to manufacturers generally, and to railroad and steamship companies. The coal that we sold to the railroad companies would contain 35 or 40 per cent screenings. We did not sell as much as half of our coal to these common carriers. When manufacturers took from us average coal, they received coal containing 35 to 40 per cent screenings, but not, of course, when they called for screened coal. After the coal was dumped into the yard the amount of screenings increased from 5 to 10 per cent. The coal which wholesale dealers took to sell to retailers would contain, however, probably not over 10% because the coal would be rescreened before sale. The screenings would then be sold as such to factories, some steamship companies, steam schooners, etc., at a reduced rate, say, \$3, a ton, less than ordinary household coal. The retail trade were charged from \$7.50 to \$11, and at one time we got as high as \$13 and \$14 for a ton of screenings. The average price at which we sold screenings was \$4 to \$5 a ton. I think in 1898—I am not sure as to 1899—we sold coal to the United States Government [1721—1656] transports. It was during the Spanish War. There was not, so far as I know, any investigation into our sale of commodities to the United States Government for transport service. I do not recall that we had a contract with the Government. We used to sell

(Testimony of Henry Rosenfeld.)

from steamer to steamer, both in San Francisco and at other ports, including, I think, Honolulu, where we had a contract for, I believe, a number of thousands of tons. That contract was not rescinded before it was fully completed. We fulfilled every contract we had with the Government.

There have been instances, I think, where the coal increased in weight in transit from Australia to San Francisco, but those were very rare.

We kept coal on storage in a number of yards in San Francisco. We did not measure the piles of coal as to quantity. We could tell pretty well by the eye how many tons were in a pile, and of course we had the weight of it.

It was not the practice as a general rule to exhaust one pile completely before we made another in its place. It has happened, of course, that one pile would be entirely cleared away before more coal was placed there. It would be impossible for me to recall a single specific instance in which I knew the exact quantity of coal that went into a pile and the exact quantity of coal that was taken out from a pile when it was completely removed. Coal piled in a yard in San Francisco will lose very slightly on account of the winds and the sun. Very little is lost by reason of the fine dust being blown away. We never have found, except in the case of anthracite and a few English coals, that a pile on being exhausted would run short of its original weight. I attribute the usual increase in the weight of a pile of coal thus left in the yards to rainfall and the humid-

(Testimony of Henry Rosenfeld.)

ity of the atmosphere and to fog. [1722—1657]

The amount of the increase varies entirely according to the brand of coal, its percentage of screenings, length of exposure, etc. Some coals turn out short, but not Nanaimo. We always attempted to handle first the coal that was in the bunkers, the coal in the yard being piled there for the winter when the demand was more. We left the coal in the yard by force of circumstances because there was not so much sale in the summer. The coal that was handled all the time, sold to the ships, and to the trade, came from the bunkers, largely. It was kept moving all the time. It is not a fact that by reason of that constant movement we had a shortage in that coal, except in an exceptional situation and with some Eastern and English brands. The coal that is thus in constant movement from ships to bunkers, and from bunkers to barges, etc., does not suffer very much by reason of humidity, and it is not as likely to increase in weight as the coal in storage in the yards up into the winter. I think, however, that even the coal that is thus handled continuously is likely to undergo some increase in weight, but I could not say what the percentage of that increase would be. I should judge somewhere between 1 and 2 per cent. Except that the coal did overrun, I have no recollection about the matter. I would say that the increase was sometimes over $1\frac{1}{2}$ per cent, but I could not tell you how many times that occurred. We have had an increase of 2 per cent and more even in the case of coals that never entered the yard. That would not

(Testimony of Henry Rosenfeld.)

be an extraordinary percentage of overage if the coal had laid in the bunker for any length of time. In the summer probably the coal would not turn out more than 2 per cent over.

I have made a statement of my recollection of the circumstances attending the coal business when I was in it, to one [1723—1658] of the counsel on the other side only, namely, Mr. Knight. That was last week. Mr. Howard also called upon me some time ago. I only had a few minutes talk with him. I told him that I could speak about percentages of overages and shortages only from memory. I did not say that I had no distinct recollection at the time and that I would not be of much service to him. I said nothing of the kind. I gave him my opinion as to the extent of the overages and the shortages. I did not say that I could not recall them. Mr. Howard did not say to me that he had gone also to the representatives of the Southern Pacific Company and the Gas Company to get their statements on shortages and overages.

Redirect Examination by Mr. KNIGHT.

In addition to the other causes which I mentioned on my cross-examination for difference between bill of lading and custom-house weights, I would now add that the custom of weighing coal on a rising beam would be an element to be considered.

We sold out our interest in the Cumberland Coal Company, I think, at the same time as we disposed of our business to the Western Fuel Company, and I believe that we disposed of all our interest in the

(Testimony of Henry Rosenfeld.)

Western Fuel Company within a year after that concern succeeded us.

[Testimony of H. C. Richards, for Defendants.]

H. C. RICHARDS, a witness called for the defendants, and sworn, testified as follows:

Direct Examination by Mr. KNIGHT.

[1724—1659]

I am now a general broker, not dealing in any particular kind of commodities. I was formerly engaged in the coal trade, especially in the importation and handling of foreign coals at this port. I have handled as a principal and agent probably in the neighborhood of half a million tons of coal in San Francisco, between 1884 and 1904. That was imported coal. When I first came here I was handling anthracite coal with the Renton Coal Company. In 1894 that company went out of business and I went over to the Oregon Improvement Company, since known as the Pacific Coast Company and eventually as the Pacific Coal Company. In 1895 or 1896 in addition to working coal with that company, I was appointed agent here for Corey Bros. & Co., Ltd., of Cardiff, who are I believe the largest handlers of bunker coal in the world. I am still the agent of that concern but owing to oil superseding coal for steam I have practically done little business for them since 1894. I have had experience at this port with the following imported coals: Anthracite coal from Wales and also semi-bituminous coal from Wales, Australian coal, British Columbia coal (a few cargoes), Japanese coal. During my connec-

(Testimony of H. C. Richards.)

tion with the Pacific Coast Coal Company I really had experience with all kinds of coal coming in here.

(The following question was at this point put to the witness:)

“Q. What has been your experience, Mr. Richards, with reference to the difference, if any, between the custom-house and the bill of lading weights on cargoes of coal imported into this port, with which you were in any way concerned?”

Counsel for the prosecution objected to this question, upon the ground that the data proposed to be elicited by it would [1725—1660] be available from the custom-house records, from which it was understood counsel for the defendants had made a tabulation covering all cargoes of coal brought into San Francisco during a considerable period of years last past, and showing the bill of lading, invoice and out-turn weights and the differences. Counsel for the prosecution agreed that they would make no objection whatsoever to the introduction of this table upon the ground that no proper foundation had been laid, but that they would reserve an objection to the admissibility of that evidence, subject to any correction in the table that might thereafter be made. Counsel for the defendants, therefore, dropped the line of inquiry indicated in the above quoted question.

Q. Mr. Richards, will you state what experience you have had as respects shortages or overages in cleaning up coal here in this market, cleaning up stocks of coal?

(Testimony of H. C. Richards.)

A. In the great bulk of cases, there was an overage.

Q. Did that overage occur in coal that had been stored here at this port? A. Yes, sir.

Q. And stored under what circumstances?

A. Under usual conditions, that is, put in a yard, subjected to water falling on it, and then taken away in the ordinary course of business.

Q. Water falling on it as the result of rain.

A. Of rain.

* * * * * * *

Q. In what quantities has this coal been stored, or yarded, upon which you state overages have occurred?

A. The piles might run, before they are cleaned up 20,000 or 30,000 or 40,000 tons, maybe more or maybe less. [1726—1661]

Q. Are you able to state at this time about how much, in percentage, these coals or these stock of coals ran in overage?

A. No, sir, I would not like to state.

Cross-examination by Mr. SULLIVAN.

The last cargoes I brought here or sold on account of Corey Bros. and Company were delivered at Mare Island in 1904. I had been engaged in the coal business from 1884 up to that date handling coal from the mine. The Renton Coal Company had its yards at the end of Market and Sacramento Streets. It went out of business in 1894. It dealt in practically all kinds of coal, but I do not think it handled Nanaimo coal. I was never interested as a prin-

(Testimony of H. C. Richards.)

cipal in any kind of coal except the anthracite coal, of which I had charge with the Renton Company and with the Pacific Coast Company, but as agent of Corey Bros. & Co. of Cardiff, I was selling both anthracite and Cardiff coal, the latter of which was semi-bituminous. Semi-bituminous coal differs from anthracite both as to hardness and as to percentage of volatile matter. I never noticed any of this coal stored in the yards. It was delivered to Mare Island. I was connected with the Pacific Coast Coal Company from 1894 to 1907, performing my duties practically all that time in and about the yard.

Q. You have stated there was an overage when there was a cleanup, is that a fact? A. Yes, sir.

Q. And you attribute that to the falling of rain upon the piles of coal; is that so?

A. Unquestionably.

Q. And the increase in weight would be in proportion to the amount of rain that had fallen upon the coal? A. Yes, sir. [1727—1662]

Q. And you attribute the increase in weight solely to the rain which fell upon the coal, do you?

A. No, I do not. I maintain from my experience with the weighing by the United States custom-house here, that every time they give the importer a bad deal of 1 per cent at least, or $1\frac{1}{2}$ per cent.

Q. What is that?

A. My experience has been that when cargoes are weighed here, by the United States Government weighers, they give the importer not a very—well, I won't use the word "square" but I believe there is

(Testimony of H. C. Richards.)

more coal put on here than the weigher gives credit for, in a way.

Q. Now, then, if I understand you, the cause of these overages is the falling of the rain upon the coal, and the manner in which the coal is weighed; is that right? A. Yes, sir.

Q. And do you know of no other cause for these overages? A. No, sir.

Q. And you know of no other elements that enter into these overages than those you mention?

A. There might be a slight element in the great humidity that exists in California at times, the fog, and so forth.

Q. The fog and the humidity simply add a little more water to the coal; that is all, is it not?

A. It adds considerable weight.

Q. The weight is due to the water which comes from the atmosphere. A. Exactly.

Q. So, then, the increased weight of these piles of coal is due to the moisture which comes from the downfall of the rain or from the humid atmosphere, or fog in the atmosphere, and the peculiar manner in which the coal [1728—1663] is weighed; now, am I correct?

A. I simply say this, that when you have rain falling on coal, it is bound to add to the weight of the coal.

Q. But where the coal is handled and shifted about, and not allowed to remain in the rain very long, is not the amount of the increase of weight rather insignificant?

(Testimony of H. C. Richards.)

A. It depends on the amount of rain; an inch of rain falling on coal increases the weight of that coal practically half of 1 per cent.

Q. But supposing that coal is turned over, and exposed to a spell of dry weather.

A. Then you have got the fog to counteract that.

* * * * *

Q. Won't the weight which comes from moisture, caused by 1 inch of rain falling on the coal, won't that be lost by evaporation during the course of a short spell of dry weather?

A. Very little, in my judgment.

(At this point counsel for the defendants asked that the witness Rosenfeld be recalled for further direct examination, so that he might mention the names of certain steamers on which the bill of lading weights exceeded the custom weights by at least 2 per cent, this information having been asked of him on his cross-examination, during which he was unable to recollect the name of any steamer except the "Peter Jebson.")

**[Testimony of Henry Rosenfeld, for Defendants
(Recalled).]**

HENRY ROSENFELD, recalled, accordingly, for further direct examination, testified as follows:

Examination by Mr. KNIGHT.

The "Montserrat" and the "San Mateo" ran over 2%, somewhere, I think, between 1890 and 1895.

[1729—1664]

(Testimony of Henry Rosenfeld.)

Cross-examination by Mr. SULLIVAN.

I cannot recall the dates any closer than I have given them. I happened to remember these particular vessels since my cross-examination because I tried to refresh my memory on the subject and talked to my brother; he thought I was right about the "Montserrat" but he was not sure about the "San Mateo."

Q. Don't you know that during the war there was a scandal arose out of the short weighing of coal and commodities supplied on contracts to the United States Government and the contract was cancelled?

A. Absolutely not, Mr. Sullivan, so far as our firm was concerned. We fulfilled every contract we ever had and there was no scandal so far as our coal was concerned, or our company, none whatever, nor was there any investigation so far as our firm was concerned; we gave every lb. of coal that we sold to the Government.

[Testimony of Herbert Stone, for Defendants.]

HERBERT STONE, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. OLNEY.

I live in Palo Alto at the present time and am attending Stanford University. I spent ten days at the Folsom Street bunkers at the request of Professor Folsom. He was at the time conducting some tests with regard to the weighing of coal. There were two tests, the bunkers being [1730—1665] filled twice. The coal was weighed in and out of the

(Testimony of Herbert Stone.)

bunkers on both occasions. I was present when the coal was weighed out the second time. I was right at the scales checking every weight. The readings were correctly taken by me. On some occasions I did the weighing myself and in other cases when they were weighing too quickly, I stopped them so that I was sure I was actually getting the figures from the beam myself. Mr. Decius, a fellow student at Stanford, now in the Argentine Republic, was watching the bunkers and wharf. He was standing right at the head of the stairway overlooking the bunkers and could see the chutes from which the carts were loaded, so that he was in a position to observe whether or not any coal was added to the coal that was being taken from the bunkers. I could see him from where I stood, and he was there all the time.

Cross-examination by Mr. SULLIVAN.

The tests lasted between August 13th and August 23d, 1913. I was there half a day all the time, that is, between 1 o'clock in the afternoon until 1 o'clock the next morning, between the 13th and 23d of August. I was watching the bunkers to see that there was nothing added or taken from them, and I was also sprinkling water at intervals during that period. Mr. Decius was also sprinkling water on his shift, but I was the only one who put any water on the coal during my own shift. I kept accurately a tally of the number of cans of water that I sprinkled on the coal. I put that in a book which I gave to Professor

(Testimony of Herbert Stone.)

Folsom. As far as I remember we put 250 gallons of water on the coal [1731—1666] per shift, there being 5 gallons in a can. We got the water from a faucet near the weigh scales—it was fresh water. Mr. Folsom took the weighings after the first test on August 18th. I was present on the bunkers part of the time while they were loading the carts, and Mr. Decius was there the rest of the time, but I was at the scales-house while the weighings were being taken. The tare of each wagon was taken before the wagons were loaded. The weight of the man was not taken; he stood to one side.

Redirect Examination by Mr. OLNEY.

Mr. Decius and I worked in two shifts: I from one o'clock in the afternoon until 1 o'clock next morning, and Mr. Decius from 1 o'clock in the morning until 1 in the afternoon. I always waited until he came, and he always waited until I came.

[Testimony of Robert Husband, for Defendants.]

ROBERT HUSBAND, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. KNIGHT.

I am in the coal business, and have been for 30 years. I am at present manager for the Stone Canyon Coal Company. I used to be in business for myself under the firm name of Husband & Brooks, for 7 years. In the course of my experience I have handled Wellington, Nanaimo, Anthracite, Welsh Anthracite, Eastern Anthracite and Seattle coal, Eastern coal from Utah, Wyoming and Colorado, and

(Testimony of Robert Husband.)

Cumberland coal from Baltimore, also Australian coal. Husband & Brooks did not handle Japanese coal, but I have had experience with [1732—1667] it in other connections. In the course of my business I imported foreign coal into San Francisco. Usually the custom-house weight was short of the bill of lading weight on Nanaimo and Australian coal. I handled the Australian coal when I was agent for J. & A. Brown, the largest exporters of Australian coal in New South Wales. I was their agent for three years.

I always carried coal in stock here for sale, in quantities varying from 10,000 to 30,000 tons. Frequently the coal would be kept in stock for 6 months before being disposed of. I should say that would be about an average time. We had several agencies and we were required whenever the stock was reduced to a minimum or cleaned up to make reports. It might average twice a year that we would take an account of stock. The coal was carried in the open, except a little Cumberland blacksmith's coal. Our experience with reference to overrun or underrun of coal on hand was that we always delivered more than we received. Our experience was that we would have 2 or 3 per cent more coal on hand when stock was taken than our books showed us to have received, basing the amount received on the custom-house weights.

We always figured a profit on our overrun of 15 cents a ton, and I always used that in making my calculations, in bidding for contracts, and so on.

(Testimony of Robert Husband.)

Cross-examination by Mr. SULLIVAN.

The Stone Canyon Coal Company is a local concern, getting its coal from a mine in Monterey. Before my connection with this company I was for 10 years associated with the Western Fuel Company. I am now the competitor of the last-named company which does not own a dollar's worth of interest [1733—1668] in the Stone Canyon Company. I left the Western Fuel Company in November, 1912. I did not own any stock in that company. I was their sales agent taking care of the interior business and of the sale, but not the delivery, of coal to municipalities, the state and the nation. My business was to sell the coal and to make the estimates in conference with the manager. I am friendly with the officials and representatives of the Western Fuel Company with the exception of the late president, and I am friendly with James B. Smith. I know Ed Smith, as I do also Sidney V. Smith and Robert Bruce. I know Eddie Mayer. I know Mr. Mills very well. None of my relatives are interested in Western Fuel stock. Before my connection with the Western Fuel Company which commenced about 1902 I was associated with J. C. Wilson & Company. Previous to that I managed the Pacific Coast Coal Company for awhile. Both these concerns ultimately merged into the Western Fuel Company. I had nothing to do with the arrangements therefor. I had nothing to do with the execution of contracts for the sale of coal by the Western Fuel Company to the Pacific Mail Steamship Company, or to the

(Testimony of Robert Husband.)

United States Government, except to figure on the latter with the management of the Western Fuel Company. I did see to putting in the bids. Before my connection with J. C. Wilson and the Pacific Coast Coal Company I was in my own firm, Husband & Brooks, for 7 years. We had our yards at Folsom Street and Main and Beale Streets, and also on Howard and Main. Our coal was stored in the open in these lots. We were required, because we were agents for large exporters to make, and we did make, an inventory of the exact quantity of coal that went into the pile of coal, and of the outcome therefrom when the pile was cleaned up. We have none of those [1734—1669] inventories left, nor have we any records in that connection that I know of. It is 21 years since the business of Husband and Brooks was closed. The coal stored in these piles would, as I have said, increase in weight. During the winter months the increase would be larger than the percentage I have given. I have known it to run as high as a 5% increase in the winter season, the amount of the increase depending both on the character of the coal and the character of the weather. Most of this coal was sold out wholesale. We may have sacked a little, but for the most part it went out in bulk. When sacks are used the weight of the sacking machine and of the sack is usually fixed on the scale beam. I cannot say whether the sacks were always weighed. It might be that in some instances they were not. The only causes I know of for the increase in the weight of these piles of coal stored

(Testimony of Robert Husband.)

in the yard would be the accession of rain and the fog and the absorption of moisture. If the pile of coal were put in the yard in summer months and remained about 2 or 3 months before the rain commenced, the increase in weight would not be so great of course as it would be in the winter when the rains were falling. It was the practice among wholesalers or importers in my time to store up coal exposed to the elements. They were drawing from their own mines.

Q. During your experience in the coal business, Mr. Husband, is it not a fact, and especially in the summer months, when the coal was transferred from ships to bunkers, and within a few days from bunkers to a barge, and within a few days from the barge into the bunkers of the liners, that there would be comparatively no increase in the weight of the coal, on account of the continuous handling of the coal?

A. I don't see why it couldn't be there, just as [1735—1670] much, Mr. Sullivan, although I cannot speak positively, for I have not definite knowledge as to that.

Q. You attribute the accession in weight, or the increase in weight from 2 to 2½ per cent to the down-pour of rain while the coal is piled in the yards; that is the fact, is it not?

A. Yes, I could not attribute it to anything else; I cannot assign any other cause for it.

Q. Now, assume that during the dry spell, when there is no rain at all, a cargo of coal comes here to San Francisco, and is within a day or two trans-

(Testimony of Robert Husband.)

ferred to the bunkers, and within a day or two after that transferred to a barge, and within a day or two after that, transferred from the barge to the liners, is it not a fact that owing to the absence of rain during that time, that instead of being an overage, there is apt to be a shortage in the coal?

* * * * *

A. I had no experience, Mr. Sullivan, along that line, and I could not answer it, although I should say, speaking generally, that the fogs and so on, and the fact that the coal is in barges, over the water, and so on, that it would absorb moisture, and take on weight.

Q. In two or three days?

A. Yes, in two or three days, proportionately.

Q. Will the coal absorb the moisture from the bottom of the boat? How will it absorb the moisture in dry weather?

A. Well, it will go through it wherever there is an opening.

Q. Assuming that the barges are water tight, and that [1736—1671] rain is not falling, and that the fog is absent, is not it the fact that the coal, instead of increasing in weight during that time, will decrease in weight?

A. No, I cannot see why it should, just for the reason I give you.

Q. Why will it increase?

A. It will increase by the absorption of moisture, from the fact that it is over the water all the time, and fogs and so on that prevail.

When I was in the coal business we often sold

(Testimony of Robert Husband.)

cargoes of coal within a few days after the arrival of the ship which bore said coal. In such cases we would sell on the custom-house weight, consequently I could not say whether there would be an overage or not. We had no sheds to cover our coal, except for the Cumberland or blacksmithing coal. I cannot say whether, when coal was stored in our yard for only 8 or 10 days and then sold to the retail trade as sometimes happened, there would or would not be a change in weight. My records are lost.

[Testimony of James J. McNamara, for Defendants.]

JAMES J. McNAMARA, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. KNIGHT.

I am now and have been since 1895 manager of the Central Coal Company, which is virtually owned by the Western Fuel Company. Before 1895 I was also engaged in the coal business and have been in that business a little over 31 years in all. In the course of that time I have imported foreign coals to San Francisco, including Australian, English, Scotch, Welsh and British Columbia, but not Japanese coals. Australian and British Columbia coals are bituminous. Bituminous coals in my [1737—1672] experience generally show the out-turn or custom-house weight to be short of the invoice or bill of lading weight to the extent of about 2 per cent; sometimes more. Two per cent would be about the average. I have carried coal in stock here in San Francisco. It would be exposed to the weather in quantities of sev-

(Testimony of James J. McNamara.)

eral thousand tons at a time. We have generally experienced an overrun in that connection amounting to 3 or 4 per cent over the custom-house weight.

Cross-examination by Mr. SULLIVAN.

All the coals deposited in the yard of the Central Coal Company at Spear and Folsom Streets are weighed both over the scales of the Western Fuel Company and over our scales.

My salary has been paid ever since I have been manager of the Central Coal Company by checks drawn by Mr. J. B. Smith. Prior to that time I was employed by J. McDonough & Co. as manager. I have never been in business on my own account. I never received any reprimand from the manager of the business if the pile of coal turned out short instead of long. I attribute the increase in the weight of the coal in a pile to the method of weighing it in, the weighing out being done accurately by us. We weigh out on an even beam and sell according to circumstances by the short ton or long ton measurement. The records of the Central Coal Company were not destroyed by the fire in 1906, and they are kept in our office at Spear and Folsom Streets. I have taken stock of the coal in the piles on storage upon a cleanup. We made a cleanup last year upon a small pile of coal—200 or 300 tons. The records of the Central Coal Company will show the exact quantity of coal that went into that particular [1738—1673] pile and the exact quantity of coal that was taken out of it at the time of the cleanup. I think last year we

(Testimony of James J. McNamara.)

cleaned up a pile of coal as big as a thousand tons and two years ago we must have cleaned up a pile of as much as 5000 tons. I have said that there is invariably a difference between the bill of lading weight and the out-turn weight upon all imported coal amounting to about 2%. It might run higher on Australian coal, probably up to 4%. I have noticed that during my connection with J. McDonough & Co. and with Frank Barnard & Co. The Central Coal Company has not been importing Australian coal for a great many years. Lately we have been buying coal from other dealers instead of importing it.

On direct examination I did not say that the shortage on Australian coal was 2%. I said that that was the average shortage on all kinds of coal. That was my experience when I was engaged in importing.

Q. But you say that in the case of Australian coal the percentage amounts to 4 per cent?

A. As high as 4 per cent.

Q. Don't you know, as a matter of actual fact, that the shortage is a small fraction of 1 per cent, the amount of shortage on Australian coal, less than .20 of one per cent? A. Not in my experience.

Q. Will you swear that that is not the case?

A. Well, as near as I can recollect; understand me, I have not been importing coal for a great many years.

Q. Say for the last ten years, will you say that the shortage in the Australian cargoes exceeded .19 of one per cent? [1739—1674]

Mr. STANLEY MOORE.—If your Honor please,

(Testimony of James J. McNamara.)

that question is uncertain in that it cannot be ascertained whether reference is had to some specific cargo or whether it refers generally to all importations of Australian coal, by every firm, and for all time.

Mr. ROCHE.—It refers to the average importation of Australian coal during the past ten years.

Mr. STANLEY MOORE.—By all firms?

Mr. ROCHE.—Yes, every cargo that came into port.

Mr. STANLEY MOORE.—Do you claim that there is uniform shortage in Australian coal that has been the same every year, and the same on every cargo of coal imported by every firm?

Mr. ROCHE.—No, that is not the proposition. This witness testified on his direct examination, without his attention being directed to any particular year, or to any particular time, that the percentage of shortage on Australian coal was 2 per cent; and on cross-examination, he increased it to four per cent.

Mr. STANLEY MOORE.—I simply wanted the question made clear, whether it was supposed to relate to some isolated single instance, or to a general shortage.

Mr. SULLIVAN.—This refers to 200 cargoes of Australian coal received at this port since 1903, and the shortage in all those cargoes was .19 of 1 per cent. This is the list taken from the custom-house records.

Mr. McCUTCHEN.—That is, .19 in other words, $\frac{1}{5}$ of 1 per cent.

Mr. SULLIVAN.—Yes, $\frac{1}{5}$ of 1 per cent.

Mr. McCUTCHEN.—And you are charging us

(Testimony of James J. McNamara.)

with fraud [1740—1675] in this case because our cargoes have not come up to 100 per cent.

Mr. SULLIVAN.—Here is a list of the cargoes, a table of the cargoes. They pass over the equator, they traverse a very hot country, and the shortage of coal in all these cargoes was .19 of 1 per cent.

Q. When did you learn that the shortage amounts to 4%?

A. My experience dates prior to 1895 in handling these cargoes.

Q. Why didn't you say that on direct examination, that it was prior to 1895?

A. I was not asked that question, I don't think.

Q. That is almost 20 years ago.

A. I was giving my experience as I knew it at that time.

Q. For whom were you working at that time, when you noticed the shortage of 4 per cent?

A. J. McDonough & Co.

I could not say how many cargoes of coal J. McDonough & Co. imported from Australia into this port, but they were very numerous. I had nothing to do personally with keeping the records. I was the general manager. I could not specify any particular cargo that ran short as much as 4%, or as much as 1%. That is beyond my memory. Nor can I remember a single year or a single month when any such shortage occurred. Nor do I know of any paper or record in existence showing such shortage. Nor can I remember the name of any ship where any such shortage occurred. [1741—1676]

(Testimony of James J. McNamara.)

Redirect Examination by Mr. KNIGHT.

My experience with reference to the difference between the custom-house and bill of lading weights was in connection with the firm of J. McDonough & Co., and that was also where I had my experience in connection with the overruns of coal in stock. I was with them for 4 years.

Mr. McCUTCHEN.—Just a moment, please, Mr. Sullivan, while the witness is here, and inasmuch as you called attention to this record, you asked whether there were any large shortages in this record of yours, I find a shortage on an Australian cargo of 124 tons; the size of the cargo is not stated here, but it would have had to have been an enormous cargo for it not to have been 2 per cent; and I find another Australian cargo where the shortage was 227 tons.

Mr. ROCHE.—Out of how many cargoes, Mr. McCutchen?

Mr. McCUTCHEN.—Well, out of a large number of cargoes, those are the largest I find; I find 48, 80, 26, 50, 29, 34, 96, 69, 66, 63, 35, 70, 227, 57, 51, 84, 61; I don't suppose you would call those small shortages.

Mr. SULLIVAN.—You will find the average to be .19 of one per cent.

Mr. McCUTCHEN.—You were asking for specific instances and the record you have in your hand shows specific instances.

[Testimony of R. P. Jansen, for Defendants.]

R. P. JANSEN, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. KNIGHT.

[1742—1677]

I was formerly, for about 30 years, weigher for the Pacific Coast Coal Company. When coal was wet we were accustomed to give an allowance on account of moisture, to purchasers.

To my knowledge there were overruns in the stocks of coal yarded by the Pacific Coast Coal Company. The percentage of that overrun on the custom-house weight would be from 2 to 3 per cent. That overrun occurred in spite of any allowance which we were accustomed to give to purchasers for coal that was wet. The range of the allowance would be about 4 to 5 per cent.

Cross-examination by Mr. SULLIVAN.

I am now bookkeeper for the California and Hawaiian Sugar Refinery. The coal of the Pacific Coast Coal Company was stored at the foot of Beale Street. A record was kept of the amount of coal that went into a pile and of the amount that was taken from the pile at cleanup. Assuming that in dry weather a pile was created and removed without any intervening rainfall, I would not think that that pile would decrease in weight. I should think, from my judgment and experience, that it would increase; in 60 or 90 days I should think that such a pile might increase about 2% or about half as much as it would increase during a rainfall. I think that is to be

(Testimony of R. P. Jansen.)

accounted for in dry weather by fogs and moisture. I would cite coal coming in by rail from Utah as an instance where a pile increased 2 per cent in dry weather in 30 days. Sometimes coal increasing 2 per cent in dry weather would remain in the yard stored 3 or 4 [1743—1678] months. You could not very well tell when it was brought into the yard one day and kept there only 3 or 4 days or a week, whether it would increase in weight, because such coal would be mixed with other coal already there and you could not get the increase except in the final turn-out when there was a cleanup.

Redirect Examination by Mr. McCUTCHEN.

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Mr. McCUTCHEN.—Q. I understand your statement to be that these overages were determined at the end of the disposition of a given quantity of coal; is that correct? A. Yes, sir.

Q. And on the final turnout, as you have expressed it? A. Yes, sir.

Q. And when you say that coal came in the yard and remained for a short time, that it increased to the extent of 2 per cent, you mean that was the average increase of the entire stock of coal?

Mr. ROCHE.—Just a moment. That question is objected to as suggestive and leading.

The COURT.—The objection is sustained.

Mr. BLACK.—We note an exception.

Mr. McCUTCHEN.—That is all.

[Testimony of George F. Moreno, for Defendants.]

GEORGE F. MORENO, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. KNIGHT.

I am working now for the Pacific Mail Steamship Company. I was formerly their agent at Acapulco, Mexico. **[1744—1679]**

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Q. As Agent at Acapulco, did you have charge of the storage of coal at that port on behalf of the Pacific Mail Steamship Company? A. Yes, sir.

Q. Will you state whether or not the Pacific Mail Steamship Company kept large or small stocks of coal on hand at that port?

A. Well, the coal ranged, sometimes it got down as low as 600 tons, at other times it was as high as 14,000 or 15,000 tons.

Q. Did the company aim to keep a stock of coal on hand for their steamers? A. Yes, sir.

Q. How many years were you occupied in performing the duties as Agent of the Pacific Mail Steamship Company at Acapulco?

A. From June, 1906, until November, 1913.

Q. What kinds of coal did the Pacific Mail Steamship Company keep in its yards at Acapulco?

A. Australian, Japanese and Nanaimo—New Wellington.

Q. Were these coals kept in separate piles?

A. Yes, sir, kept in separate piles.

(Testimony of George F. Moreno.)

Q. How long was the coal kept in stock before it was used?

A. Well, never more than from a year to 18 months.

Q. How was the coal weighed which was received at Acapulco, that is, weighed in?

A. We weighed a certain amount of it; as a rule we used to weigh two tubs each morning out of each hatch when the steamers were discharging, and we took the average weight on that against the bill of lading weight.

Q. And when coal went onto the steamers of the Pacific Mail Steamship Company, how was the coal weighed? [1745—1680]

A. On every new cargo we got we always weighed about 5 tons, or sometimes even as much as 10 tons, and then we would fill it into little baskets; they would hold about 60 or 70 lbs. apiece, and we would give 34 of those to the ton when they were put on the lighter and then in order to be sure, we used to throw in about from 100 to 120 more to give the lighter a good weight.

Q. And what experience did you have with the coal overrunning?

Mr. ROCHE.—That question is objected to, may it please the Court, as immaterial, irrelevant and incompetent, and upon the further ground that no proper foundation has been laid, and no similarity exists in the method described by the witness as to the weighing and the method of weighing coal imported into the port of San Francisco, or sold by the

(Testimony of George F. Moreno.)

dealers in San Francisco, and upon the further ground that no proper foundation has been laid in this—that it has not been shown that the climatic conditions there have been and are the same as the climatic conditions have been and are in San Francisco.

The COURT.—The objection is sustained.

Mr. KNIGHT.—Q. Will you state how the winter climate at Acapulco compares with the winter climate in San Francisco taking for instance this winter as an illustration?

Mr. ROCHE.—That question is objected to upon the same grounds, particularly in view of the fact that the witness has already described the method of weighing there.

Mr. McCUTCHEN.—If your Honor please, it is important here unless it is conceded now,—I don't know whether it is, or not, it may be at this stage of the case, that [1746—1681] the addition of moisture increases the weight of coal. It makes no difference whether that moisture is added in San Francisco or in Acapulco, if the experience of the witness shows that the addition of moisture does account for a considerable exchange of weight, we have the right to show that experience, and particularly with the class of coals we are dealing with here.

The COURT.—The objection is sustained. We have had testimony—this is only cumulative, and it would be cumulative upon conditions that in the nature of which are not the same as the conditions here.

(Testimony of George F. Moreno.)

Mr. STANLEY MOORE.—An exception.

Mr. KNIGHT.—That is, I understand your Honor's ruling to cover any testimony which would go to show what the behavior of coal similar to coal situated in Acapulco is because it was there in Acapulco and subject to a different method of weighing in Acapulco than the method that has been in vogue here?

The COURT.—Yes, and different climatic conditions.

Mr. KNIGHT.—With your Honor's permission I will ask a question touching the climatic conditions, so as to remove that feature of the objection. I will ask the witness to state what is the comparative winter climate of Acapulco and San Francisco?

Mr. SULLIVAN.—How far is that from the Equator?

Mr. KNIGHT.—Oh, I don't know how far Acapulco is from the Equator.

A. I think it is in 17 north.

Q. And what are we here?

Mr. SULLIVAN.—37, is it not? [1747—1682]

Mr. KNIGHT.—I don't know.

Q. How does the rainfall compare with the rainfall, for instance up to this time, this winter in San Francisco, how does the rainfall there compare with our rainfall during this winter in San Francisco?

A. I never have seen it rain as heavily as it has in the last month in San Francisco, in the month of January.

Q. Do you know what the average rainfall in Aca-

(Testimony of George F. Moreno.)

pulco is in the winter? A. No, sir, I couldn't say.

Q. But you think the winter is not as severe there from the standpoint of rain as it has been in San Francisco this winter? A. No, sir.

Q. Is that coal stored in the open?

A. Yes, sir, it is stored in the open.

Q. Do you know where that coal comes from—that is, whether the Western Fuel Company sells any of that coal to the Pacific Mail Steamship Company?

A. They have sold coal to the Pacific Mail Steamship Company, yes, sir.

Q. What kind of coal? A. New Wellington coal.

Mr. KNIGHT.—Now, your Honor, while, of course, it is cumulative in a sense because it simply goes to sustain other witnesses who have been offered, yet in view of the particular experience of this witness, and the particular records which he kept of each particular kind of coal, we offer this evidence to the jury for the purpose of demonstrating the fact that we contend for that coal does increase by moisture to the extent which this witness will testify.

Mr. ROCHE.—Now, just a minute, if your Honor [1748—1683] please—

The COURT.—The objection is sustained.

Mr. KNIGHT.—We note an exception. That is all.

(There was no cross-examination of this witness.)

[Testimony of C. P. Caruthers, for Defendants.]

C. P. CARUTHERS, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. OLNEY.

I reside at Sausalito, and my office is in San Francisco. I am a public accountant, representing Price, Waterhouse & Company, one of the leading firms of certified public accountants in the United States.

I am manager of their San Francisco office. I have made an examination of the diaries or barge books kept by the defendant Mills, beginning with the year 1904, and ending with the year 1912, to ascertain the amount of coal which, according to those books, was received by the barges and turned out by the barges, respectively, and also the overage and underage and the final net overage. With those figures I worked out the percentages. This work I did at the request of counsel for the defendants. I prepared a table showing the results of my examination. This is the table which you now show me.

(The table was here offered in evidence, subject to correction, as Defendants' Exhibit "KK," and is in words and figures as follows, to wit: [1749—1684]

[Defendants' Exhibit "KK" Summary of Coal in and Out of Barges.]

WESTERN FUEL COMPANY.

SUMMARY OF COAL IN AND OUT OF BARGES.

Year.	Coal in		Coal Out		Overage		Underage		Balance Left Over		Net Overage		Percentage of Net Overage on Coal in.	
	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	Lbs.	
1904	111,580	209	115,800	634	4,288	1,599	68	1,174			4,220	425	3.78	
1905	114,082	953	119,898	843	5,849	354	33	464			5,815	2,130	5.09	
1906	124,859	1,454	129,956	444	5,237	618	140	1,628			5,096	1,230	4.09	
1907	93,103	113	98,678	1,891	5,684	1,766	89	1,044	19	1,184	5,575	1,778	5.98	
1908	106,831	353	112,203	1,512	5,551	35	169	1,203	8	2,153	5,372	1,159	5.03	
1909	94,860	470	98,534	1,569	3,802	1,173	128	74			3,674	1,099	3.87	
1910	101,385	60	107,926	1,796	6,620	639	78	1,143			6,541	1,736	6.45	
1911	104,125	169	108,940	607	6,027	1,967	333	2,129	878	1,640	4,815	438	4.62	
1912	103,019	342	108,489	438	5,497	813	27	717			5,470	96	5.31	
	953,845	1,883	1,000,428	774	48,559	4	1,069	616	907	497	46,582	1,131	4.88	

[1750-1685]

(Testimony of C. P. Caruthers.)

That table shows the total amount which went into the barges in each year and the total amount which came out, all according to Mills' books. The tables also show the overages and the shortages where there were shortages, and the total amount and the percentage of net overages year by year, and the total for the entire period; according to that table the total amount received by the barges from 1904 to 1912, inclusive, was 953,845 tons, 1883 pounds, and the amount put out 1,000,428 tons, 774 pounds. The net overage was 46,582 tons, 1131 pounds. That net overage is 4.88 per cent of the total amount received by the barges.

Cross-examination by Mr. SULLIVAN.

I got at that percentage of 4.88 by dividing the total tons of coal delivered into the barges into the total amount of overage, and that is the correct way. There is no other way that I know of. The overages in the Mills' books vary. I do not recall any individual overages running as high as 31 or 40 per cent. I did not check individual percentages. I arrived at the different annual percentages by going through the diaries and analyzing from each barge loading a statement showing the amount of coal that was delivered in and the amount of coal that was delivered out, as shown by the final closing of each barge. I don't recall taking the precise percentage of overage of coal from any one barge. I simply added up the inturn of the barges for one year and then the out-turn for that year, and then arrived at a percentage for the whole year.

[Testimony of Edward J. Smith, for Defendants.]

EDWARD J. SMITH, one of the defendants, having taken the witness-stand and having been sworn, testified as follows:

My name is Edward J. Smith. I am in the employ of the Western Fuel Company now and have been since January, 1910. I am employed in the capacity of a clerk on the barges. My duty is to check the tubs that are weighed. I am usually [1751—1686] occupied in connection with barges coaling non-rebate ships. Well, about one-half my time is given to working in connection with the coaling of rebate ships on the Pacific Mail Steamship Company's dock. When I was on that dock non rebate ships were not being coaled. In connection with coaling of rebate ships, my duties are to check the tubs and take the weights from the customs weigher. By checking the tubs I mean a count or tally of tubs that are going up. When I am at the Pacific Mail dock I many times stay on the deck of the steamer and do not go down on the barge. I particularly stay on the decks of the large steamers like the "Manchuria," "Mongolia," "Korea," and "Siberia." I cannot climb down the ladders on those ships very well. I, therefore, get the weights from the customs weigher at noon time and at 5 o'clock. I do not often remain at night during the coaling of those vessels. On the occasion of the coaling of the "Korea" by the barge "Wellington" on the 18th of December, I left, I think, at 11 o'clock at night. When a weight is to be taken I do not call out to a hatch-tender or the

(Testimony of Edward J. Smith.)

crew of the barge. It is entirely in the hands of the Government weigher as to what weight shall be taken and when.

I never had any conversation with David G. Powers in which I stated to him that my brother was sending Mr. Schwerin checks or money or anything of that kind. Such conversation did not occur. I never entered into any conspiracy with anybody down there in regard to weights, or in respect to this coal.

(There was no cross-examination of this witness.)

[1752—1687]

[**Testimony of Edward H. Mayer, for Defendants.**]

EDWARD H. MAYER, one of the defendants, having taken the witness-stand and having been sworn, testified as follows:

I live in San Francisco and have lived here all my life. I am at present in the employ of the Western Fuel Company and have been for 11 years. Prior to that time I was in the employ of John Rosenfeld Sons for 8 years, during the first two of which I shoveled coal in the yard, and, during the last six of which I was check clerk, in which position I have continued with the Western Fuel Company. My duties in that capacity are to take the weight from the custom-house officers as they read the weights off the beam and to distribute the coal. In distributing the coal my rule is generally to fill up all vacant space. When the mines of the Western Fuel Company are in operation and ships are bringing in the coal at regular intervals, the company is always

(Testimony of Edward H. Mayer.)

crowded for space in which to place its coal. The bunkers, therefore, at such times are always kept filled. We have offshore bunkers, yard bunkers, wharf bunkers and the yard proper. The offshore bunkers are out toward the end and are the bunkers from which the barges are loaded. The wharf bunkers are those from which the dealers get their coal on the dock. The other bunkers are over on the other side of East Street. The yard proper is the place where we store our coal when all the bunkers are full.

The Rosenfeld Company operated the Mission Street bunkers. I did not get over to the Folsom Street bunkers until about 6 months after the Western Fuel Company took over the Dunsmuir Company. During those 6 months the weigher [1753—1688] on the Folsom Street bunkers was an old gentleman named Martin Farrell who is now dead.

I remember some beams on which the scale-house rests. Those beams look just the same now to me as they ever did. I have had experiences in regard to cars loaded to such an extent as that when they came on the scales at the Folsom Street bunkers, the coal would grind against one of those beams. Shortly after I went to work on Folsom Street, for instance, one of the men came up there with a full load of cars which struck those beams, and broke my scale down. The capacity of those scales is 25,500 pounds. That is shown by a 25,500 pound mark on the beam proper, and a 5,000 pound hanger. I weigh two cars at a time and they, with their coal

(Testimony of Edward H. Mayer.)

content, will run almost to the limit of the scales. I have often warned the men not to overload those cars.

There are platforms down there at Folsom Street to be placed under the towers during the times that the ships are discharging. At the beginning of the discharge of each ship the custom-house officer and myself generally go down underneath the hoppers to see that the boards are properly placed. I do not instruct the men working on top of the bunkers to purposely allow those cars to overflow as the coal comes down from the chutes so that said coal will spill down; in fact, I have often warned the men not to do that. If the coal gets down on the track and between the cars it is apt to burn out the wires that connect the motor with the car and disconnect the shoe, and put the car completely out of business. That, of course, detains the work. In the unloading of a ship we generally have one or two additional men [1754—1689] on the bunkers to clean up the coal that spills on the boards.

It is hard to say how many different men I have employed down there during the time that I have worked on the bunker, but I have had at least 250 or 300. I have employed these men to clean up the coal that might spill on the boards and to assist in dumping the cars. I know a man by the name of Samuel Griffin who has been a witness in this case. During all the time that I have been employed at Folsom Street that man never worked for me more than ten days. I also know a man by the name of

(Testimony of Edward H. Mayer.)

Waterdahl who has testified during the course of this trial. I discharged Mr. Waterdahl from our employ because he was drunk and wrecked a train upstairs and delayed the work a whole half day.

Mr. Waterdahl had been in that condition on previous occasions. He was always that way. The only reason I employed him was that it was very difficult to get a man who could operate a motor. When we were pinched for men I was compelled to put Waterdahl to work.

(At this point by consent of the prosecution and the Court the witness Mayer was withdrawn temporarily in order that another witness might be put upon the stand.)

[Testimony of Fred Tietjen, for Defendants.]

FRED TIETJEN, a witness called for the defendants, and sworn, testified as follows:

Direct Examination by Mr. McCUTCHEN.

I would state that if one of the cars down there on the Folsom Street bunkers was to be attached so securely to another that the trucks of one would not reach the track, then if those two cars were weighed separately, the weight taken [1755—1690] off the one would to that extent be added to the other. In other words, the weight taken off the car that is on the scale will be added to the car that is off the scale.

I have made experiments for the purpose of determining this matter, which show, for instance, that if a weight of 100 pounds had been taken off the second car that weight would be added to the third

(Testimony of Fred Tietjen.)

car when said third car was weighed.

I made an experiment with two cars (miniature cars) and have tightened the link and have run the cars over and the back truck would be raised so that it would put the weight off the car on the scales; I weighed it; then I ran the cars back and found that the weight that was taken off the car on the scale was put on the one that was coupled to it.

Cross-examination by Mr. SULLIVAN.

In making this experiment, I used a tight brass link. I bolted both of the cars together. The link had an offset in it, of probably $1/16$ of an inch, it being a very small car that I was using. I performed my experiment down at the office of Fairbanks-Morse & Company, not at the Folsom Street bunker. I remember that the scales at Folsom Street are so situated that the platform is flush with the car. The cars that I used for my experiments were little toy cars. I did not have to go down to the Folsom Street bunkers to try the experiment with the cars there. I know positively that it does not make any difference whether I used them, or the small cars. The capacity of the cars that I used was 7 pounds. The scale was a 150 pound platform scale. The platform on the scales at Folsom Street descends when [1756—1691] loaded cars get on it from $1/4$ to $3/8$ of an inch, according to whether the timber is new or rotten. If it is new timber the descent would not be more than $1/8$ of an inch at the most. On the scales that I used the platform de-

(Testimony of Fred Tietjen.)

scends $\frac{3}{8}$ of an inch at the most.

Q. Would it not depend on how the link was formed, whether the weight would fall upon the third car while the weight of the third car was being taken, or whether the weight would fall upon the second car? Wouldn't it depend upon the shape of the link?

A. To my way of thinking you could not make the link tight enough to hold them so as to take the weight off.

The COURT.—Q. Do I understand you to testify that a link could not be made that would take the weight off? A. Not a round link, no.

Q. I thought your testimony was that if it were taken off it would counterbalance when the other car was weighed.

A. It would if you could tighten it tight enough.

Mr. STANLEY MOORE.—Your Honor, that is also our claim. I forgot to examine the blacksmith about it when he was on the stand, but we claim that if there was a temporary tightening there due to a collision, or any other practice, that the matter would adjust itself in the course of half a day's use, that it would not remain tight. You could not operate the cars and take the switches and go around the curves, that it would wear itself loose. [1757—1692]

Mr. SULLIVAN.—Q. Suppose it were a bent link, a link with an offset in it, would not the pressure upon the car that was being weighed depend on the offset?

(Testimony of Fred Tietjen.)

A. No, it would not make any difference whether there was an offset or whether it was straight.

Q. It wouldn't make any difference at all.

A. No, it wouldn't make any difference; the play would be there just the same.

Q. Suppose the lower part of the bent link was on the second car, and that the third and fourth cars were upon the scales, would not the pressure of that link come down upon the third car?

A. It could not if it was loose.

Q. It could not if it was loose. A. No.

Q. Suppose it was tight.

A. If it was tight then the cars on the scale would lift up.

Q. Suppose the third car was being weighed and that the higher part of this link was attached to the second car, would there not be a pressure down upon the third car?

A. The link would have to be tight enough for the third car to press the second car to make a pressure on it.

Q. Suppose the link was tight enough and the pressure was great enough to affect the weight of the third car, there would be no loss of that weight afterwards.

A. What it would take off the one it would put on the other; it would have to.

Q. It would have to.

A. Yes; I will demonstrate it to you.

Q. Would that be so if the platform descended 3/8 of an inch? [1758—1693]

(Testimony of Fred Tietjen.)

A. Yes, sir. It is often in weighing a railroad car where the scale is not long enough, they will weigh the front trucks first and then they will weigh the other half of it afterwards.

I did not go to the Folsom Street bunkers for the purpose of trying to make an experiment with these cars and with the peculiar kind of a link which the Government claims was in use at the time of this discovery.

**[Testimony of Edward H. Mayer, for Defendants
(Recalled)].**

EDWARD H. MAYER, one of the defendants, on the resumption of his direct examination, testified as follows:

Direct Examination by Mr. STANLEY MOORE.

The collision leading to the discharge of Mr. Waterdahl happened on the side of the scale toward East Street, right against the fence, that is, at the side of the bridge there. The cars came pretty near going into the street. I never gave instructions to Mr. Waterdahl to dump a train of cars whenever he got a chance, without first having brought them on the scales, nor did I ever give such instructions to Mr. Griffin, or to anyone down there.

I have observed the weighing at Folsom Street by the Government weighers for a number of years. They weigh very rapidly. It is not a fact that the weights taken there are as a matter of custom taken with a slow and gently rising beam. The whole transaction of weighing an entire train of four cars,

(Testimony of Edward H. Mayer.)

involving two separate weighings would occupy a fraction of a minute, two cars being weighed at a time.

The average net weight for two cars filled with coal would be 5 tons, or in pounds, 11,200 pounds. I should judge that the difference between a rising beam and an evenly balanced beam in a net weight of coal of 11,200 pounds, [1759—1694] would run from 50 to 100 pounds.

Q. Mr. Mayer, you understand the manner of the loading of the barges, do you not, the electric conveyor, and how that operation is carried on?

A. Yes, sir.

Q. Well, the testimony is that sometimes the barges were loaded with coal taken from one place and sometimes from another; but as a matter of fact, coal was frequently discharged into the barges that was coming right off the ship, was it not, that is, out of the hoppers into the cars, the cars down to the scales, and then back to the offshore pockets, and through an open pocket into a barge; that frequently occurred, did it not?

A. It happens all the time.

Q. Now, Mr. Mayer, during the time that you have been employed down there, I wish you would state to the jury whether or not it ever happened that any kind of coal would go into the barges as to which no weight would be taken.

A. Yes, sir.

Q. And what kind of coal would that happen with respect to?

A. Screenings.

Q. Now, I wish you would state to the jury

(Testimony of Edward H. Mayer.)

whether or not it is the fact that during occasions upon which the scales would be occupied and coal would be discharging from a vessel through the hoppers and into the cars and afterwards down through an offshore pocket at the end of the bunkers into a barge below, screenings would also be conveyed into that barge and discharged into it and mixed with the coal that is coming from the vessels at the same time.

A. Yes, sir, that happens very often. [1760—1695]

Q. Now, I wish you to state whether or not on those occasions, or some of them, those screenings have not been weighed at all.

A. Yes, sir, quite often.

Q. Whereabouts do the screenings come from that go into those barges or find their way offshore?

A. They come up on a belt from the screening-bin. We load the cars there and switch them off from the cutoff into the barges.

Q. And when you say you switch them off through the cutoff into the barges, what cutoff do you have reference to,—what do you mean by the cutoff,—just where is that, please tell us?

A. There is a switch right alongside of where they load the cars and they switch off from there into the offshore pockets.

Q. When you say there is a switch right alongside of where they load the cars, are you referring now to the screenings-cars?

A. To the screening-cars, yes, sir.

Q. And what place is there right alongside of

(Testimony of Edward H. Mayer.)

where they load the cars with the screenings?

A. There is a belt that comes up into a kind of a hopper and they put the cars alongside of that hopper and the screenings run right into the cars.

Q. And a switch leads from there right off into the offshore pockets, does it? A. Yes, sir.

I worked 8 years on the old Mission Street bunkers that were operated by the Rosenfelds. About a year and a half after the Western Fuel Company took control of those bunkers, that is, between 1904 and 1905, a change was made in the position of the weigh-house. Formerly it stood on the westerly [1761—1696] end of the bunkers, right at the head of the bridge and was lifted above the track like the scale-house at Folsom Street. At that time the scale rods were open and exposed, both under the scales-house toward the table above which the beams and the poise were. After the weigh-house was changed, 9 or 10 years ago, these scale rods were all incased.

Mr. Freund, the Government weigher, never in his life called my attention to the presence of any chalk upon my trousers. As a matter of fact, after 1905, the rods of the scale-house at Mission Street were incased and boxed always.

I did not know Dave Powers in 1905, and I never either in 1905, or at any other time had a conversation with him in which I said that the scales were not weighing right, and that I was not doing a thing to the "lime juicers." I first got acquainted with Dave Powers shortly after the fire. Dave Powers did not in 1905, or in 1904, or at any time prior to

(Testimony of Edward H. Mayer.)

April, 1906, overweigh on the Mission Street bunkers, or any bunkers of the Western Fuel Company. I don't remember his ever weighing at the Folsom Street scales-house in his life. So far from wanting or asking the men on the Folsom Street bunkers to load their cars so heavily and so high that the coal, or some of it, would be shoved off the car by the beams upon which the scales-house rests, I repeatedly warned those men not to bring in big loads upon the scale. It is not true that I used to want or ask the men on the top of the bunkers to let the chutes run out so that the coal would overflow the cars and roll alongside of them and down them. I have not [1762—1697] entered into any conspiracy with anybody to defraud the Government with respect to coal that is imported here. I do not have any recollection concerning anything out of the usual with respect to the discharge or the unloading of the "Americano" in January of last year. I was employed there at the time she was discharging.

Q. I wish you would state to the jury what does happen on top of those bunkers with respect to cars that are loaded just before 12 o'clock.

A. The men load up the four cars just before 12 o'clock and they bring them on the scale and weigh them; if they have not got sufficient time to dump those cars before 12 o'clock they leave them stand on the track, it is done repeatedly—in fact, it is done almost every day; at 12 o'clock we go to dinner, and about 5 minutes to one or a few minutes to one the

(Testimony of Edward H. Mayer.)

juice is turned on, it is off sharply at 12 and is turned on again a few minutes before one, and the men leave the cars standing on the tracks, and a few minutes to one,—it has been weighed by the Government, and a few minutes to one they take the cars down and dump them. That has been done numerous times.

Q. If cars are loaded just a moment or two before 12 o'clock and get down to the scales at 12 o'clock, is it possible to run those cars any longer after 12 o'clock, when the whistle is blown?

A. No, sir. We have got stuck with cars on the scale loaded, the whistle blew and the power goes off.

The power goes off at 12 o'clock sharp, and comes on a few minutes before 1 o'clock, and then goes off sharp at 5 o'clock again, and after that the plant is dead and the cars could not be operated or the hoppers opened. [1763—1698]

Q. A witness has testified here, a Mr. Sass, I believe, who said he worked for the company 4 or 5 years, and that on two occasions, both of them prior to the fire, he heard coal discharged from the hoppers after 5 o'clock, one one night and one the next night, which he assumed went into the bunkers without being weighed; do you know anything about that, Mr. Mayer?

A. Well, as soon as the whistle blows I am out of that scale-house ready for home.

Q. And that whistle blows at 5 o'clock.

A. Yes, sir.

(Testimony of Edward H. Mayer.)

Cross-examination by Mr. SULLIVAN.

On the north side of the inshore bunkers there are two chutes on each hopper. The coal cannot be discharged from those hoppers into the bunkers below through those chutes. These chutes were used formerly in the Dunsmuir times—we don't use them. If we opened those chutes the coal would go directly into the center of the track and put our third rail out of commission. The track is always covered.

In answer to the question whether, if the cars were there and were overloaded from the chutes, the coal would drop into the bunkers. I would say that we only use those chutes at the finish of a vessel. We never take any coal out of those chutes while we are operating the ship. It is only when the vessel is finished that we clean out those chutes. Of course, if the cars were placed under the chutes and filled up and the doors of the cars were left open, the coal would run through. The chutes are opened automatically by compressed air. When we begin to unload a vessel the whole tower or hopper [1764—1699] is open and those chutes are open too, and naturally get filled up, but we leave the coal in there until the ship is finished. In order to let that coal out we would have to open the door of the chute, but we never do open that door until the ship is finished. We could get the coal out, of course, if we sent men up with shovels. The chute proper reaches just about to the rail of the track, but there is an apron that goes down when the chute is open, to the center of the track, so that the coal will reach the cars.

(Testimony of Edward H. Mayer.)

That apron can only be let down by compressed air.

I have never been a weigher for the Western Fuel Company. I am simply the tally-clerk and have been with them in the latter capacity since they began business.

I sit right alongside of the custom-house weigher when he is taking the weight and I take the weights down also as he reads them. In other words, he calls off the weights and I put them down in my book. I also look at the beam so as to see the weight recorded.

I was with John Rosenfeld Sons 8 years. My salary has not been increased during the last two years. The bunkers were full of coal the greater part of the time. That was my testimony on direct examination,—referring to the time when we were discharging Nanaimo coal. This was the condition of all the bunkers. The offshore bunkers would hold 1400 tons, the yard bunkers 4,000 tons, and the wharf bunkers from 2,900 to 3,000 tons. If we are dealing with one kind of coal only so that we don't have to guard against mixture, we are apt to fill the offshore bunkers and the inshore bunkers within a few days. It all depends on circumstances. It is not a fact that within a few days again the entire quantity of coal is removed from those bunkers. I have seen coal [1765—1700] remain in all the bunkers here 7 or 8 months. It does not make a particle of difference with regard to this condition whether the Pacific Mail liners are being coaled or not. The coal trade gets its coal from all the bunkers except the offshore. It all depends on how business is, whether there is a

(Testimony of Edward H. Mayer.)

stream of wagons going to the wharf bunkers daily. That is not generally the case. There are wagons there every day usually, but not streams of wagons. The coal that goes into the offshore bunkers and the inshore bunkers is not being continually changed. Some of the barges get their coal direct from the ship, others from the offshore bunkers. All the offshore bunker coal, however, does not go to the ships for fuel because sometimes we tap those pockets and put the coal taken from them on the wharf—that is done often by putting a chute leading into the wharf and opening the ropes, so that the coal falls from the offshore pockets onto the wharf. That is apt to be done very often if we have not got the same kind of coal in the wharf bunkers that we have in the offshore bunkers. When coal is thus dropped from the offshore bunkers down on to the wharf itself it is not allowed to stand there long exposed to the elements. The coal is thus usually dropped on the wharf in pursuance of an order for that particular coal, and it is, therefore, sacked up immediately and taken right away. I do not know the weight of every carload of coal that is weighed upon the Folsom Street bunkers because I am not always there. There are several clerks keeping tally and I have not been on the Folsom Street bunkers continually every day during working hours since the dismantling of the Mission Street bunkers because I have worked also in this period at Vallejo Street, [1766—1701] Green Street, and once in awhile on a barge that goes out to coal some tramp ship. However, I am the greater

(Testimony of Edward H. Mayer.)

portion of the time on the Folsom Street bunkers, and while I am there I take note of all the coal that is discharged from the vessels into the bunkers. When I am checking a ship I tell the men who run the cars to put such and such coal in Number 6 pocket or Number 8 pocket, or Number 10, as the case may be, and make a memorandum thereof on top of the list that I am working on. I do not in my office keep a record of the exact quantity of coal deposited in each one of these pockets. When the pockets are originally filled direct from the steamer I keep a memorandum, but I cannot always tell how much coal is in those pockets when they are partly tapped out.

Q. I know, but when a vessel is discharging you direct the men into what pockets to deposit the coal, do you not?

A. Yes, sir, but that coal is there to sell.

Q. And you keep a memorandum of the exact quantity of coal deposited from that particular ship into these several pockets, do you not?

A. Yes, sir.

• Q. To whom do you deliver that memorandum?

A. Well, I keep it myself and once in a while I put it on a piece of paper and keep it on the desk downstairs, in the office.

Q. Every day that you perform duty upon the Folsom Street bunkers don't you furnish Mr. Mills with a memorandum showing the amount of coal that has been discharged and the amount of coal that has

(Testimony of Edward H. Mayer.)

been deposited into the several pockets? [1767—1702]

A. He does not know the number of pockets the coal has been discharged into, he knows the amount of coal put in the offshore pockets, but not into each pocket.

Q. Does not your memorandum show the amount of coal deposited in each offshore pocket?

A. Yes, sir, but it is all charged to the offshore pockets.

Q. But does not your memorandum show the number of the pocket?

A. My memorandum does, yes.

Q. And don't you give that memorandum to Mr. Mills? A. No, sir.

Q. Now, don't you every day furnish Mr. Mills while a cargo of coal is being discharged, with a memorandum showing the amount of coal deposited in the offshore bunkers, the inshore bunkers and into the yard?

A. Yes, sir, but I don't give him the amount discharged into each particular pocket.

Q. I know, but you do give him a memorandum showing the disposition made of all the coal that is being discharged from a ship?

A. I give him a memorandum of the distribution of the coal that came out of the ship that particular day.

Q. And the amount of coal still remaining on board the ship? A. I subtract it from the invoice.

Q. So that every day Mr. Mills gets this memoran-

(Testimony of Edward H. Mayer.)

dum from you; and Mr. J. B. Smith also gets a like memorandum from you? A. No, sir.

Q. Don't you send a copy to the office?

A. Each day?

Q. Yes. A. No, sir.

Q. Do you only make out one memorandum?

[1768—1703]

A. Excuse me, Mr. Sullivan, I do make out two memorandums.

Q. And one of those copies you deliver to Mr. Mills and the other copy you leave in the office, don't you?

A. There are different kinds of memorandums.

Q. What is the difference in the memorandums?

A. One memorandum is a daily report of the coal and the other memorandum is a charge for the distribution of the coal, and how much is left in the steamer each day.

Q. What kind of a memorandum do you leave in the office, if you leave any there?

A. I make out a daily report.

Mr. McCUTCHEN.—Mr. Sullivan, in fairness to the witness what do you mean by "the office"? Do you mean the office where Mr. Mills is, or do you mean the office up on California Street?

Mr. SULLIVAN.—Q. Don't you furnish one to Mr. Smith for his use?

A. I make out a daily report; when a steamer first arrives I get the invoice weights from a custom-house officer, the amount of coal which is supposed to be in her, and I make a memorandum on my book, and each day I subtract the amount of coal dis-

(Testimony of Edward H. Mayer.)

charged from that ship from the invoice.

Q. To whom do you give that report?

A. I send one report up to Mr. Smith, with the expense account, and the other report I give to Mr. Mills.

Q. Doesn't the report that is given to Mr. Smith, or the report that is sent to Mr. Smith, doesn't that contain also a statement of the distribution of the coal?

A. Mr. Sullivan, you misunderstand me entirely. We charge all the coal that is run into the offshore pockets, we charge it as offshore coal; it does not signify any particular pocket it went into. [1769—1704]

* * * * *

Mr. SULLIVAN.—Q. I will show you a memorandum here, or a report, marked U. S. Exhibit 126, and I will ask you if that is the form of report that was sent every day to Mr. J. B. Smith, when you were acting as weigher? A. These are, yes, sir.

Q. What do you mean by these are?

A. That is an expense report, how much it takes to discharge the ship from each particular hoist; these are my expense reports; this is the report I sent each day.

Q. A daily report? A. Yes, sir.

Mr. McCUTCHEN.—Mr. Sullivan, suppose we have that marked by an initial so that there will not be any misunderstanding as to what he refers to.

Mr. SULLIVAN.—Q. The report referred to is marked "Daily report"; the preceding papers are

(Testimony of Edward H. Mayer.)

marked "Discharging report"; which of these reports did you send to Mr. Smith every day?

A. I sent him the expense report and I sent the daily report.

Q. That is, you sent what is known as the "discharging report" and what is known also as the "daily report."

A. Yes, sir; that is the cost of discharging the vessel.

Q. The discharging report contains a memorandum showing the amount of coal hoisted from the vessel onto the bunkers.

A. No, sir, it does not.

Q. What is this?

A. This is the amount of coal that is discharged from each hoist; this is the number of hours work; this is the time of the men; this is the amount paid.
[1770—1705]

Q. What does this mean here, 199 tons, 2150 lbs.; 194 tons, 510 lbs.; 184 tons, 1540 lbs.; 179 tons, 1140 lbs.; don't those figures indicate the amount of coal hoisted from the ship onto the bunkers that day?

A. It doesn't signify anything; it signifies just the amount of coal discharged that day out of that vessel.

Q. That is what I am trying to get at.

A. But you said on the bunkers.

Q. Discharged out of the vessel?

A. Yes, sir.

Q. Into what place?

A. No particular place.

The COURT.—Q. Into the hopper?

A. No. That is just the coal that was weighed out of the ship on that day.

Mr. SULLIVAN.—Q. Where is the coal dis-

(Testimony of Edward H. Mayer.)

charged into the Folsom Street bunkers located, if not located on the bunkers, or in the yard?

A. You can take a corresponding report to this and you can tell where it goes to.

Q. What is the corresponding report to that?

A. What date is that?

Q. This is dated April 10th, 1912. What does that indicate?

A. That indicates the total amount of coal hoisted out of each hoist and the distribution of the coal.

Q. And what does this report indicate as to the place of distribution?

A. It indicates where the coal goes.

Q. In this particular report, where does it go?

A. 592 tons, 370 lbs. that day went into the "Comanche"; 166 tons, 490 lbs. went into the offshore bunkers.

Q. Before the coal went into the "Comanche" did it go into the hoppers of the bunker; the 592 tons, 370 lbs.? [1771—1706]

A. That might not signify all the coal that went into the barge that day, that coal went directly from the ship.

Q. Did it go directly from the ship or did it go from the ship to the hopper and from the hopper into the barge?

A. It went from the ship into the cars and onto the scale and back again and through the offshore pocket and from the pockets into the barge.

Mr. STANLEY MOORE.—He speaks of that as going directly into the barge.

(Testimony of Edward H. Mayer.)

Mr. SULLIVAN.—But it could not go directly into the barge.

Mr. STANLEY MOORE.—He means that it is not stored intermediately, in some of the bunkers.

Mr. SULLIVAN.—Q. These daily reports show the disposition of coal each day that is hoisted onto the bunkers, don't they? A. Yes, sir.

Q. And attached to these discharge reports and daily reports is another memorandum or statement entitled "Summary of coal discharged"; who makes out this statement? A. I do.

Q. When do you make it out?

A. At the finish of the vessel.

Q. Then upon the finish of the vessel what do you do with the report? A. Send it to the office.

Q. Send it up to Mr. J. B. Smith?

A. I don't know who gets it; I send it up there.

Q. Do you make out another report like that too?

A. No, sir.

Q. You only make out one report of this character?

A. That is at the finish of the vessel. [1772—1707]

Q. And this shows the total number of tons taken from the vessel, does it? A. Yes, sir.

Q. And shows the disposition of the entire cargo taken from the vessel? A. Yes, sir.

Q. Showing whether the coal was discharged into barges or was discharged into the offshore bunkers, or discharged elsewhere?

A. From this vessel it shows the amount of coal

(Testimony of Edward H. Mayer.)

that went into these barges, but that does not signify all the coal that went into those barges simply because it is on this sheet.

Q. Nö, I understand that; but it shows how the cargo on this vessel was disposed of? A. Yes, sir.

Q. Do you bring these to the office yourself or do you send it to the office yourself by a messenger?

A. I put it in a letter-rack and it goes up to the office I guess.

Q. These reports which I have just shown you, some entitled "discharging reports" and others "daily reports," are just a sample of reports that are made out as to the discharge of every vessel; is not that so?

A. Those reports are made out daily and others are made out at the finish of the ship.

Q. And this summary is a sample report of a summary of the cargo discharged from every vessel that discharges at the bunkers of the Western Fuel Company; is that not so? A. Yes, sir.

Q. And it shows to a lb., does it not, the disposition of a cargo of coal? A. Yes. [1773—1708]

Sometimes screenings are put into the barges without being weighed. We get them out of the screen pocket at the lower end of the bunker right opposite the offshore pocket. I do not know the capacity of the pocket that contains the screens. The screenings are continually going in and coming out and no record is kept of their amount. The screenings are run into the barges with cars which are located at the mouth of the screen-chute,—about 200 feet west

(Testimony of Edward H. Mayer.)

of the screen bin on the wharf bunkers. When the screenings have been put in the cars they are then taken to the barges or into pockets and sold. The cars containing screenings are not all weighed, though the majority of them are.

In answer to the question whether I am supposed to keep a correct and accurate record of the total amount of coal and the total amount of screenings received and distributed from the Folsom Street bunker, I will say that I have not got anything to do with the bunkers at all after the coal is once put in them. I am not supposed to keep a record of all the coal that goes into the bunkers and of all the coal that leaves the bunkers. I have nothing to do with that at all. I do not know who keeps the record of the screenings that leave the bunkers. I suppose the weigher, Mr. Miller, on the Folsom Street wharf keeps a record of the coal that goes out of the bunkers, that is, of that part of it that is weighed, but I don't know whether it is his duty to weigh all the coal that leaves the bunkers. I am not over there. The screenings that are put into the barges do not come from the offshore bunkers. Sometimes they go directly into the barge from the screenings-bin, when we are loading a barge from a steamer. Sometimes those screenings are weighed and [1774—1709] sometimes they are not.

Q. Don't you ever weigh the screenings that go from the offshore bunkers into the barges?

A. I weigh screenings that go into the offshore pockets but I say I don't often weigh screenings that

(Testimony of Edward H. Mayer.)

go from the screening-bin directly into a barge while we are loading direct from the steamer. The screenings might be weighed into a pocket and taken from that pocket into the barge.

Q. When they are taken from the hopper and put into the cars, are not the cars always weighed?

A. From what hopper?

Q. From any hopper containing screenings.

A. There is only one screening-hopper.

Q. How do the screenings get into the cars that are weighed?

A. There is a belt that carries the screenings up on top and there is a chute that leads directly into the cars and we load the cars there.

Q. Those cars are weighed, as a general rule, are they not?

A. As a general rule, yes, but not always.

Q. Who attends to weighing them?

A. It depends on who is there.

Q. Where the screenings are not in fact weighed, is there any record kept of those screenings?

A. The man running the cars keeps track of the number of cars of screenings.

Q. Does he make any memorandum on a paper?

A. No, sir.

Q. Where does he make a memorandum?

A. He takes a piece of chalk and chalks it on the head of the car. [1775—1710]

Q. And is there a memorandum afterwards given to you?

A. Sometimes he gives it to me when I am there,

(Testimony of Edward H. Mayer.)

and sometimes he don't give it to me.

Q. Well, if you are there, you always get it, don't you?

A. He tells me what number of cars he ran there, yes.

Q. If you are there, he gives you a memorandum of the number of cars he ran, does he?

A. Yes, sir.

Q. While you are there, you get a statement showing the number of cars that have had screenings?

A. Yes, sir.

Q. Do you then make an entry anywhere, in any book, referring to these cars? A. No, sir.

Q. Is there any record kept of those cars containing screenings that are not weighed? A. No, sir.

Q. Don't you give to Mr. Mills the next morning, and after getting a statement yourself, a memorandum or make some declaration to him as to the number of cars that contained screenings that were not weighed?

A. I give Mr. Mills a memorandum of the screenings that have been weighed.

* * * * * * *

Mr. SULLIVAN.—Q. Now, let us get this down so we can understand it. When you were there you say you learned the number of cars that had contained screenings, and which were not weighed; is that the fact? A. You say I learned it?

Q. Yes.

A. I asked the man how many loads he ran.

(Testimony of Edward H. Mayer.)

Q. And you say he chalks it on the car? [1776—1711]

A. That is what he says he does.

Q. And you ask the man how many loads he ran, and he always tells you, does he not? A. Yes, sir.

Q. When does he tell you that, at the end of the day's work?

A. It all depends; I don't know when he tells me; he might tell me then or he might tell me the next morning.

Q. At some time during the operation, you do learn the number of cars that were not weighed?

A. I tell the man to keep the run of the screenings.

Q. And he tells you the number of cars containing screenings that were not weighed, does he not?

A. Yes, sir.

Q. When he gives you that information, do you make an entry in any book, or any paper, or anywhere at all, for the purpose of keeping tab?

A. No, sir.

Q. Don't you give any memorandum to Mr. Mills?

A. No, sir. Sometimes I say "Fifty tons went down there," or something of that kind, or sixty tons, but there is no accurate account kept of it.

Q. It is only sometimes that you do that?

A. The only memorandum, the only time I ever have anything for Mr. Mills in regard to screenings, he *might passing* up there, and I say, "60 tons of screenings went into the barge" of screenings that were weighed into the offshore pockets.

Q. Let me understand you. You do give him a

(Testimony of Edward H. Mayer.)

memorandum of the cars that were weighed?

A. I didn't say I give him a memorandum.

Q. But you tell him? A. I tell him, yes, sir.

Q. Without making an entry in any book.

A. I don't make an entry in any book. The screenings that I tell him about were already weighed. [1777—1712]

Q. Well, we will come to the screenings which were not weighed. You ask the man in charge of the car how many loads he ran, don't you? A. Yes, sir.

Q. You do that through curiosity alone, do you?

A. Certainly.

Q. Certainly, through curiosity? A. Yes, sir.

Q. Not for the purpose of keeping a record of the amount of screenings that go into the barges at all?

A. No, sir. You *can* keep a record of any coal unless you weigh it.

Q. Why do you give to this man in charge of the car instructions and ask him how many cars he ran?

A. The man generally tells me he makes 10 loads, or 5 loads, or 6 loads, that night, or maybe the next morning.

Q. You always find out from him the number of loads he makes? A. If he tells me, I do.

Q. Don't you ask him, if he doesn't voluntarily tell you? A. No, sir.

Q. Why does he make a chalk mark on the car?

A. I don't know.

Q. Does he do that under your instructions?

A. No.

Q. You never tell him to make a chalk mark on the car, do you?

(Testimony of Edward H. Mayer.)

A. I tell him once in a while to make chalk marks, certainly.

Q. What for, just for exercise, or for the purpose of making a memorandum; why do you tell him to make a chalk mark on the car?

A. To show how many loads of [1778—1713] screenings he ran down there.

Q. Why do you want to know the number of loads of screenings he ran down there. Why do you want to know that, if not for the purpose of keeping a record?

A. I don't keep any record, Mr. Sullivan; you can't keep any record unless you weigh the stuff.

Q. Why do you want to know the number of cars he ran down there?

A. I just want to see how many loads of screenings he ran down there.

Q. Just simply through curiosity? A. Yes, sir.

Q. Don't you, when you learn the number of cars that ran down there, don't you make a tabulation showing the number of cars that ran down there, as well as the number of cars that were weighed?

A. You can't make any tabulation unless you weigh the stuff.

Q. Well, do you? Don't you make a tabulation showing the quantity of screenings that go down into the barge? A. No, sir.

Mr. STANLEY MOORE.—Q. You are speaking of unweighed screenings?

The WITNESS.—Unweighed screenings.

Mr. SULLIVAN.—Yes, unweighed screenings.

(Testimony of Edward H. Mayer.)

A. No, sir.

Q. Where does the man make the chalk mark?

A. On the front of the car.

Q. For every load that goes down, does he make a chalk mark?

A. I don't know whether he does or not, I don't know whether he makes chalk marks all the time, or not. [1779—1714]

Q. But you see chalk marks on the front of the car occasionally, don't you?

A. Yes, I do, occasionally.

Q. And each chalk mark is supposed to indicate a load of coal? A. A load of coal, yes, sir.

Q. And every day those chalk marks are made on cars containing screenings, where the screenings are not in fact passed over the scales?

A. I didn't say every day, I said occasionally I saw chalk marks on there.

Q. Aren't those chalk marks put upon those cars under your instructions when you are in charge of the bunkers? A. No, sir.

Q. Aren't they put on the car under instructions from the man in your place when you are not there?

A. I don't know anything about that.

Q. Do you know the quantity of screenings one of those cars would hold? A. No, sir.

Q. Can you tell within a thousand pounds of how many pounds one of those cars would contain?

A. No, sir.

Q. You have been weighing there on the Folsom Street bunkers for a good many years?

(Testimony of Edward H. Mayer.)

A. Yes, sir.

Q. And you tell this jury now that you do not know approximately how many pounds of screenings one of those cars will weigh? A. I do not.

Q. And you cannot tell within a thousand pounds of how many pounds those cars will hold of screenings?

A. No, sir, there are different kinds of screenings.

Q. Take the ordinary screenings of Nanaimo coal, can you tell within 2000 lbs.?

A. It all depends on the way the cars are loaded.
[1780—1715]

Q. Answer the question "Yes" or "No"?

A. No, sir.

Q. You cannot? A. No, sir.

Q. Can you tell within 3,000 pounds as to how many pounds of screenings one of these cars will hold?

A. Well, it depends entirely on how the cars are loaded, I don't know how they load the cars.

Q. Answer the question yes or no. A. No, sir.

Q. Now, during your experience as a weigher or tally clerk for the Western Fuel Company, have you not weighed as many as 20,000 cars of coal?

A. I should say I did.

Q. Haven't you weighed as many as 10,000 cars of screenings, say, within the last ten years?

A. Oh, I think I have, yes.

* * * * *

Mr. SULLIVAN.—Q. How often is it that screenings unweighed are deposited in the barges?

(Testimony of Edward H. Mayer.)

A. It all depends on the class of coal that is turned out of the ship.

Q. Well, during a year, would you say it was once a month? A. Yes, sir.

Q. Would you say that it was oftener than once a month? A. Yes, sir.

* * * * * * *

Q. Who keeps the record of the exact quantity of coal that is loaded into the barges?

A. I don't know.

Q. You say you don't know? A. I don't know.

* * * * * * *

Q. Now, you say you have been working for the company for a great many years past, say since the [1781—1716] Western Fuel Company was organized, and you don't know who keeps the record of the coal that is discharged into the barges?

A. Coal that is charged to the barges?

Q. I say you don't know who kept a record of the coal that is discharged into the barges?

A. The coal that is weighed, Mr. Mills gets that record.

Q. Mr. Mills keeps a record of coal that is weighed—

Mr. STANLEY MOORE.—He says he gets that record.

Mr. SULLIVAN.—Q. Mr. Mills keeps that record? A. Yes.

Mr. McCUTCHEN.—He says Mr. Mills gets the record.

Mr. SULLIVAN.—Q. Who keeps that record?

(Testimony of Edward H. Mayer.)

A. Mr. Mills get it, and I guess he keeps it.

Q. Do you know who keeps the record of coal that is not weighed and that is discharged into the barges? A. No, sir.

Q. And do you say you don't know, after being in the employ of the company for more than ten years, or ten years? A. Yes.

The capacity of the scale used upon the bunkers is 25,500. As to the tare of the cars, one pair would run 9850, another 9,400, and another 8,000 and another 8,340. We always weigh two cars at a time. If the cars were loaded to their full capacity with Nanaimo coal it would break the scales down. I don't know what the capacity of the loaded cars is. We never load to the capacity because if we did we could not weigh the cars. I mean by loading to the capacity putting in as much coal as we could get into the cars. We generally carry about 5 tons to the load on the two cars.

In the last ten years several hundred men have been employed upon the bunkers. In the last 3 years I could not say [1782—1717] how many there have been. Whenever I need an extra man I go down stairs and pick him up. I could not say how many men I have had up there on top of the bunkers running cars, shovelling coal, etc., but I should think as many as 100. I think the name of each man who works there is entered on the pay-roll. I do not know whether the pay-rolls are still in the office of the Company. I give men warning about overloading the cars whenever they overload

(Testimony of Edward H. Mayer.)

them. That might happen once or twice on a ship, and again not in 3 or 4 months.

In answer to the question how often I give men warning not to allow coal to drop into the bunkers below, I would say that there are boards there and it cannot so drop. The deck is entirely covered by boards when the cars are being loaded, that is, right beneath the hoppers. Between the hoppers the space is open, but the space is never open under the hoppers.

The "juice" to the Western Fuel Company is supplied by the power-house. We never get power from another company on those bunkers. The switch that controls the "juice" on the bunkers is in the power-house. We have no switch upstairs.

I said on direct examination that we had 250 or 300 men employed. I meant that we had that many different men at work on the bunkers during 10 or 12 years.

In answer to the question when I last saw Griffin, I will say that I think it was about 1910 or 1911 when I picked him up on the wharf. He worked half a day at that time. He got drunk in the afternoon. I remember the occasion very well. He was running screenings. I employed him in the morning. [1783—1718] He borrowed half a dollar from me at noon for his lunch and when he came back he was drunk and I told him I did not want him. He worked off and on for the company 2 or 3 days at a time before that. He worked so seldom, however, that I could not say when he was first employed by us. He

(Testimony of Edward H. Mayer.)

might work perhaps a couple of days in the year. Griffin is the only name I ever knew him by. He never worked there a week continuously in his whole life. I do not know of any other man called Griffin on the pay-roll, but I am not familiar with the names of the stevedores or coal heavers and yard men.

During my experience down there I always maintained friendly relations with the custom-house officers. We worked together for years and years and were pretty friendly.

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Q. How often during the year would the custom-house weighers work overtime, work into the night, between 1906 and 1912?

Mr. STANLEY MOORE.—That is objected to, if your Honor please, as not cross-examination. This man is a defendant. That was not touched upon, your Honor, in his examination in chief.

Mr. SULLIVAN.—Counsel asked the witness if he ever engaged in any conspiracy against the Government, your Honor please, and we submit that in view of his answer that he did not, that we have a right to show his relations [1784—1719] with these weighers.

Mr. STANLEY MOORE.—I don't think a mere general question like that would involve an examination into subjects that were not touched upon, or that were not included in the direct examination. That does not give them an excuse to examine him

(Testimony of Edward H. Mayer.)

to everything and anything they might wish to examine him about.

Mr. SULLIVAN.—We submit that when a defendant submits himself as a witness he is subject to the ordinary rules of evidence, which apply to an ordinary witness.

The COURT.—The same, but none other.

Mr. SULLIVAN.—He has stated, in answer to Mr. Moore, that he never entered into a conspiracy against the United States Government. This question is put to the witness because of that answer, and because of that testimony, and that is the only way we can prove a conspiracy, if your Honor please, by circumstantial evidence.

The COURT.—The objection is overruled.

A. I could not say.

Q. Did the custom-house weighers ever work overtime at the Folsom Street bunkers? A. Yes, sir.

Q. How often would you say they did work overtime during those years?

A. I could not say, Mr. Sullivan, offhand.

Q. When they did work overtime, did you not, while you were on the bunkers, pay the custom-house officers overtime, between those dates, between 1906 and 1912?

Mr. STANLEY MOORE.—If your Honor please, we desire to interpose the same objection to this question that [1785—1720] is put now upon the ground that it is not cross-examination. We submit that the mere asking of the question with regard to his entering into a conspiracy does not open the

(Testimony of Edward H. Mayer.)

door to them to rove around and ask questions upon any conceivable matter. It might be that so far as this particular matter is concerned, there was no turpitude in it whatsoever in so far as this witness was concerned, nothing that by the wildest stretch of the imagination could border upon conspiracy, or be a foundation for any argument to that end. It might be that it was a custom that prevailed up and down that water front, and common to every concern and individual doing business there; and so far as any illegality was concerned, or any wrong was concerned, there might not be a particle of wrong in it. We submit that it is beyond the province of cross-examination, in so far as this particular witness is concerned.

The COURT.—The objection is overruled.

Mr. STANLEY MOORE.—We note an exception.

A. I did, the same as everybody else was doing down there.

Mr. SULLIVAN.—Just answer the question.

Mr. STANLEY MOORE.—Answer the question “Yes” or “No,” Mr. Mayer.

Mr. ROCHE.—Just a minute: We ask that that answer be stricken out, your Honor.

Mr. STANLEY MOORE.—It may go out.

The COURT.—Yes, let it go out.

A. Yes, sir.

Mr. SULLIVAN.—Q. How much overtime did you [1786—1721] generally pay them?

A. A dollar an hour.

Q. From whom did you get the money to pay the

(Testimony of Edward H. Mayer.)

overtime? A. The paymaster.

Q. Who was the paymaster?

A. Bud Hopkins.

Q. Bud Hopkins was the paymaster, you say?

A. Yes, sir.

Q. And he paid all the other people, did he not, other than these weighers who got overtime?

A. I don't know.

Q. What other payments of money did you make, besides the money that you paid to the weighers?

A. I paid help that I hired upstairs.

Q. You paid the help yourself, did you?

A. Some of them, yes, sir.

Q. Wasn't that very seldom?

A. If I picked up a man, and if he wanted his money before Saturday, I would pay him.

Q. When you made the payments of money for overtime to the custom-house weighers, did you make any memorandum of the fact of the payment?

A. Sure; I put it in my book to get my money.

Q. In what book did you make a memorandum?

A. I just put it on a piece of paper and gave it to the timekeeper.

Q. And the timekeeper made an entry in his book, did he? A. Yes, sir.

Q. And during those years; between 1906 and 1912, when the weighers did work overtime, and you would be on the bunkers, you always paid them the overtime, did you not? A. I did, yes, sir.

Q. At that time, did you know that the weighers who worked overtime were always allowed by the

(Testimony of Edward H. Mayer.)

Government a day off for overtime at night? [1787—1722]

Mr. STANLEY MOORE.—That is objected to, if your Honor please, as assuming that they were in fact allowed a day off. The testimony does not establish that they were allowed a day off.

Mr. ROCHE.—That testimony was put in by the prosecution, may it please the Court, and has been positively testified to.

Mr. STANLEY MOORE.—No, it was not positively testified to. Mr. Blinn said that they received a letter at one time, and while counsel for the prosecution had that letter in his possession when examining that witness with respect to it he never saw fit to offer that letter in evidence and to have it read to the jury. The witness said that he received a letter in accordance with the terms of which he did not feel that he could make a charge against the importer for the overtime of these men. He said the letter did not refer to anything of the kind, but in the office, acting on their own initiative, and without any authority at all themselves in the premises, they adopted a system of crediting a man's time with respect to the time that he worked overtime; but whether that system was carried out or whether any of these men actually got an additional day during all of the time that they labored in the Government's employ on account of overtime is not established by this evidence.

The COURT.—The objection is overruled.

(Testimony of Edward H. Mayer.)

Mr. STANLEY MOORE.—We note an exception.

A. No, sir.

Mr. SULLIVAN.—Q. When you paid this overtime to the weighers, did they sign any receipt or acknowledgment of the payment? A. No, sir.

Q. When you made a report to the paymaster of the payments [1788—1723] of overtime did you give the names of the weighers? A. No, sir.

Q. Whose name was signed to the memorandum that you gave to the paymaster? A. My name.

Q. Is it not a fact that you signed your name to the time-book showing the payment?

A. Yes, sir, I signed the pay-roll for that money.

Q. Why didn't you insert the name of the weigher to whom you gave this overtime?

A. Because it was not the custom.

Q. Because it was not the custom?

A. It was done previously to the time that the Western Fuel Company ran the coal business on the front.

Q. That is, you mean by John Rosenfeld's Sons?

A. They all do it, John Rosenfeld's Sons, Dunsmuirs, the Pacific Coast Coal Company, everybody did.

Q. They all tip them, do they?

A. They don't tip them; they pay them for their labor.

Mr. McCUTCHEN.—I submit that that is improper. if your Honor please.

Mr. SULLIVAN.—That was the witness' testi-

(Testimony of Edward H. Mayer.)

mony, I submit, if your Honor please.

The COURT.—I know, but it doesn't help anything to characterize it as tipping a weigher. The witness has testified to what was done.

Mr. SULLIVAN.—All right, your Honor.

I first met Joseph Waterdahl when I went to work on the Folsom Street bunkers. Waterdahl was already there working for John Dunsmuir & Co. He continued for 6 months with the Western Fuel [1789—1724] Company. He was operating one of the trains when I first found him. He was last employed about 3½ years ago. He did not work on those bunkers steadily at any time, however,—just off and on. He was operating trains or dumping cars. He was discharged, as far as my recollection goes, 3 or 3½ years ago.

I remember a shortage occurring at one time on the barge "Nanaimo." Mr. Freund weighed the coal in and he weighed it out, and she ran 40 tons short. I do not remember her running short twice in succession in one year. I do not remember having a discussion with Mr. J. B. Smith over it. Nor did Ed Powers come to me and talk about it. In answer to the question whether there was some complaint about that, I would say that the barge was perfectly clean when Freund weighed the coal into her. He took her down to the Mail Dock then, and it was just fortunate that he got the same barge and weighed her out, and she ran 40 tons short out of 750 tons. Neither Ed Powers nor J. B. Smith made

(Testimony of Edward H. Mayer.)

any complaint to me about that incident. Mr. Mills, however, said something about it.

I remember when the "Indra" discharged into the "Algoa." I think that was about 1907 or 1908, and occurred at Folsom Street. She was discharged partly overside. I think at times 4 hatches were working. It is not a fact that 2 hatches were running into the bunkers and 2 into the "Algoa." That was not ordinarily the case. I was there part of the time. I did not at that time make a complaint about the tubs being overloaded. In answer to the question whether I did not at that time complain to Edward Powers that the Western Fuel Company was getting the worst of the weighing, I would say that I never saw Edward Powers around there at night while I was on the bunkers. I did not see [1790—1725] him around the "Indra" when she was being discharged into the "Algoa." Edward Powers was never assistant superintendent of the Western Fuel Company. He merely had charge of the bunkers. He was not next in charge under Mr. Mills. Eddie Powers never had anything to do with me whatsoever.

In answer to the question whether I am on friendly terms with Eddie Powers, I would say that I speak to him occasionally. I do not sit down and have a friendly chat with him around the court here every day.

When I was selling coal hoisted from the yard, I used to weigh it closely, and on as nearly an even

(Testimony of Edward H. Mayer.)

beam as possible. I never weighed coal that was being discharged from importing vessels at all, and, therefore, I never weighed it on an even beam. Nor have I ever seen such coal weighed on an even beam. I said that the difference in weight between a train-load of cars weighed upon an even beam and upon a rising beam would be from 50 to 100 pounds on each two cars. When we were running a full day, from 7 o'clock to 5, discharging a ship from 4 hatches, we would often weigh out 1800 tons of coal in a day and a night. We have taken out as high as 2,500 tons. Two trains of 4 cars each would be in operation.

Ever since I went to work for the Western Fuel Company, the scales-house at Folsom Street has been located in its present place. The change in the location of the scales-house at Mission Street was made in 1904 or 1905. After the change took place the weigher, when facing the beam, would be looking easterly. There were four hoppers on that Mission Street bunker. The weigher could see the full length of the bunker from any part of the scales-house. It would take about 4 minutes for a train of cars to get loaded at Number 1 or Number 2 hopper, come [1791—1726] to the scales-house, get weighed, discharged at the middle of the offshore bunkers, and return to the hopper.

Q. Do you say you never saw Mr. Dave Powers weighing coal at any time?

A. Did I ever see him weighing coal at any time?

Q. Yes. A. On the deck of a ship?

(Testimony of Edward H. Mayer.)

Q. Anywhere at all, on the bunker, on the deck of the ship, or elsewhere? A. I didn't see that.

Q. Where did you see him weighing coal?

A. On Mission Street; he sent for me.

(Witness continuing.) That was in 1908 or 1909. I never saw Mr. Dave Powers weighing coal at any time, either on the bunkers or on the deck of a ship, except that I found him weighing coal in 1908 or 1909 at Mission Street. He weighed there on the finish of three different steamers. That is the only time I ever saw him weigh coal on bunkers. He weighed out on the deck in the discharge of the "Algoa." I guess I saw him there.

Redirect Examination by Mr. STANLEY MOORE.

Mr. STANLEY MOORE.—Q. Mr. Mayer, what was the reason why the screenings were not always weighed, and an exact record was not kept of that at such times as you put screenings directly into a barge?

A. Well, I wanted to save time, and I didn't want people to know how much screenings went into the barges.

* * * * * * *

Q. Do you, or not, Mr. Mayer, weigh those screenings?

A. They are weighed for sale; anybody can come along and buy those screenings.

Q. The contents of the offshore pocket, to be stored in the offshore pocket, they are weighed, are they not? A. Yes, sir.

Q. And is it or is it not a fact that where lump coal

(Testimony of Edward H. Mayer.)

or average coal goes in the barges, that the weight of that is kept? A. Yes, sir.

Q. And isn't it generally the fact that the screenings, unless it happened that a whole lot of screenings were going into the barge, that the screenings are [1792—1727] weighed that go into a barge?

A. As a general rule, yes, sir.

Q. What do you mean when you say that you didn't want people to know always how much screenings were going into those barges?

A. Well, the custom-house officer was sitting there, and I never brought the screenings up on the scale, he would see where all the screenings were going to, and I didn't want him to ask me any question.

Q. What did you care whether he knew it or not?

A. Because he would circulate around the front that we were loading up a barge with screenings.

Q. About the overtime of the custom-house officers, Mr. Mayer, a fact that all the big importers down on the front, whether they were coal dealers or not, when they had to do work at night, like getting out freight for the east, perishable freight, and where it meant a great deal to them to work at night, whether or not they paid the custom-house officers, too?

* * * * *

A. Ever since I remember on the front, custom-house officers were paid for overtime.

Mr. STANLEY MOORE.—Q. And is that a fact as to all the big concerns in business down there, in

(Testimony of Edward H. Mayer.)

so far as you know, whether in the coal business or any other kind of business?

A. Yes, sir, so far as I know.

[Endorsed]: Filed Jan. 19, 1915. W. B. Maling, Clerk. By C. W. Calbreath, Deputy Clerk. [1793—1728]

Recross-examination by Mr. SULLIVAN.

Q. You say you didn't want the custom-house officers to see you putting the screenings in the barge?

A. No, sir.

Q. You were afraid if they did see the screenings put in the barges, the fact would get known along the waterfront?

A. That we put screenings with our coal, yes, sir.

Q. You didn't want the people along the waterfront to know that, did you?

A. That we mixed our coal with screenings?

Q. Yes. A. No, I didn't care about it.

Q. You didn't care about having anybody know it, did you? A. No, sir.

Q. Why didn't you want anybody to know it?

A. Well, I didn't think it was anybody's business.

Q. Is it not a fact that you didn't want anybody to know it because the screenings made the coal inferior coal for bunker purposes?

A. No, sir. When that coal was run down there, Mr. Sullivan, it was all big lump coal, generally from the between-decks of the ship, or the finish of the ship, and we already had the breakdown in our bunkers, and so as to make it fair average coal,

(Testimony of Edward H. Mayer.)

I used to run screenings with it.

Q. But you did that in as secret a manner as you possibly could?

A. I didn't want the world to know we were putting screenings in those barges.

Q. And you didn't want the Pacific Mail Steamship Company to know it, either, did you?

A. It didn't make any difference. [1794—1729]

I can name parties who paid overtime to weighers between the years 1906 and 1912, e. g., Taylors, who are large importers, and the Pacific Coast Coal Company. I do not know of any other persons of my own knowledge, but the weighers told me. That is where my information comes from. I know all the people interested in the coal business paid overtime to the weighers between 1906 and 1912, but I cannot mention any more names.

At this point a series of exhibits was introduced in evidence by the defendants, subject to correction, it being explained that the figures used in the same were taken from the United States custom-house records in San Francisco, and that the tabulations were prepared by the Western Fuel Company. This series of exhibits was deemed to have been read in evidence and consisted of the following, namely:

(1) Defendants' Exhibit "LL," consisting of (a) a table showing importations of Australian coal to the port of San Francisco from April 1, 1906, to July 25, 1913, discharged by the Western Fuel Company and showing the name of the vessel, date of discharge, name or names of the consignees, the bill of lading

(Testimony of Edward H. Mayer.)

weight, custom-house weight, and the overs or shorts, as the case might be, said table showing a net shortage of 2958 tons, 1331 pounds, or a percentage of shortage of .0057; (b) a similar table of Australian coal discharged by the Pacific Coast Coal Company and James P. Taylor, showing a net shortage of 2520 tons, 1826 pounds, or a percentage of shortage of .0070; [1795—1730] (c) a similar table of Australian coal discharged by J. J. Moore & Company showing a net shortage of 540 tons, 715 pounds, or a percentage of shortage of .0112; (d) a similar table of Australian coal discharged by the Pacific Fuel Company, showing a net shortage of 37 tons, 1493 pounds, or a percentage of shortage of .0059; (e) a similar table of Australian coal discharged by sundry firms and corporations, including the Southern Pacific Company, showing a net overage of 21 tons, 1998 pounds, or a percentage of overage of .0008, and including Hind, Rolph & Co., showing a net overage of 558 tons, and 58 pounds, or a percentage of overage of .034; (f) a similar table of importations of Australian coal where there were split cargoes discharged by two or more distributors, showing a net overage of 39 tons and 911 pounds, or a percentage of net overage of .00027; (g) a similar table showing importations of Australian coal between the aforementioned dates, and including all the aforementioned distributors, showing a net shortage of 5438 tons, and 158 pounds, or a percentage of net shortage of .0048; (h) a similar table of importations of Japanese coal between April 1, 1906, and July 25, 1913, discharged by sundry firms

(Testimony of Edward H. Mayer.)

and corporations, including the Western Fuel Company, showing a net shortage of 2639 tons and 1216 pounds, or a percentage of .0263, the Pacific Coast Coal Company, showing a net shortage of 717 tons, 191 pounds, or a percentage of .0150, the Southern Pacific Company, showing a net shortage of 149 tons, 770 pounds, or a percentage of .0262, and J. J. Moore & Company, showing a net overage of 1 ton and 529 pounds, or a percentage of .0000.

Said Defendants' Exhibit "LL" is in words and figures as follows, to wit: [1796—1731]

[Defendants' Exhibit "LL"—Table Showing Shortages and Overages in Coal Importations.]

Importations of Australian Coal, April 1, 1906—July 25, 1913.

Discharged by Western Fuel Company.

Name of Vessel.	Date.	Consignees.	B/L Weight.	C. H. Weight.	Over.	Short.
Versailles	Sept. 1906.	Hind, Rolph & Co.	2998	2993- 181		4-2059
Boverie	Feb'y.	H. M. Newhall & Co.	5689	5828- 960	139- 960	
Como	"	J. J. Moore & Co.	5866	5926-1724	60-1724	
Tiberius	Mar.	Hind, Rolph & Co.	5682	5690-1390	8-1390	
Antiope	Apr.	"	2036	2036- 410	410	
Irish Monarch	"	"	5726	5726-1160	1160	
Norman Isles	"	"	4694	4796-2120	102-2120	
Arrow	June	J. & A. Brown	4890	4903- 350	13- 350	
Earl & Douglas	July	H. M. Newhall & Co.	5898	5962- 420	64- 420	
Wm. H. Smith	"	J. & A. Brown	2410	2393- 550		16-1690
Thyra	"	J. J. Moore & Co.	5385	5386- 548	1- 548	
Williscott	"	Hind, Rolph & Co.	3241	3267- 210	26- 210	
A. J. Fuller	Aug.	J. & A. Brown	2410	2431-1310	21-1310	
Jethou	"	Hind, Rolph & Co.	5880	5916- 150	36- 150	
Aeon	Sept.	H. M. Newhall & Co.	5789	5772- 920		16-1320
Indian Monarch	"	Barneson Hibbert Co.	5757	5598- 200		158-2040
Scottish Monarch	"	J. & A. Brown	5852	5763- 850		88-1390
Barkston	"	H. M. Newhall Co.	5831	5734-1340		96- 900
Borderer	Oct.	J. J. Moore & Co.	5893	5934- 590	41- 590	
Eir	"	H. H. Newhall & Co.	5514	5510-1670		3- 570
Hercules	"	"	5712	5655		57
Hatasu	"	J. & A. Brown	3720	3726- 50	6- 50	
Strathmain	"	J. J. Moore & Co.	6016	6017- 200	1- 200	
Boverie	Nov.	J. & A. Brown	5770	5852-1510	82-1510	
Quito	"	H. M. Newhall & Co.	4325	4196-1270		128- 970
Craighall	"	J. J. Moore & Co.	5630	5681- 590	51- 590	
Queen Louise	"	Hind, Rolph & Co.	4265	4313-2120	48-2120	
Craigvar	"	E. C. Evans	5910	5772- 510		137-1730
Fitzclarence	"	Hind, Rolph & Co.	5105	5220- 340	115- 340	
Oceano	"	H. M. Newhall & Co.	6048	6045- 900		2-1340
Bankfields	Dec.	E. C. Evans	5162	5135-1890		26- 350
Forerie	"	H. M. Newhall & Co.	4696	4733- 380	37- 380	
Finn	"	"	5424	5462-1940	38-1940	
Kelvinbank	"	Hind, Rolph & Co.	4777	4747-1310		29- 930
Aeon	1908.					
Cecil	Jany.	H. M. Newhall & Co.	5558	5559-2090	1-2090	
Camphill	"	Hind, Rolph & Co.	4821	4777-1090		43-1150
Indra	"	J. J. Moore & Co.	4798	4818- 690	20- 690	
J. H. Lunsmann	"	G. W. McNear, Inc.	7278	7009- 372		268-1868
River Forth	"	J. J. Moore & Co.	1755	1696-1940		58- 300
Thyra	"	G. W. McNear, Inc.	6140	6014- 630		125-1610
Yeddo	"	Hind, Rolph & Co.	5180	5110- 911		69-1329
Suverie	"	H. M. Newhall & Co.	5234	5179-1065		54-1175
Inveric	Feby.	"	8333	8318-2000		14- 240
Andromeda	"	"	5892	5885-1440		6- 800
Nederland	"	Hind, Rolph & Co.	416	432-2050	16- 2050	
Oriana	"	"	5345	5358- 864	13- 864	
	"	G. W. McNear, Inc.	4550	4381- 500		168-1740
Forward			235301	234674- 905	949-1766	1576- 861

[1797—1732]

	Forward	235301	234674- 905	949-1766	1576- 861
Rygja	1908.				
Strathdon	Feb'y. E. C. Evans	5346	5397- 698	51- 698	
Jas. Drummond	" Hind, Rolph & Co.	5924	5884-1470		39- 770
Kelvinbank	Mar. "	1970	1941-1600		28- 640
Kaiulani	" "	5000	4995-1266		4- 974
G. S. Carleton	" J. J. Moore & Co.	2320	2308-1330		11- 910
Chas. E. Moody	" J. & A. Brown	2570	2586- 770	16- 770	
A. J. Fuller	" G. W. McNear, Inc.	2411	2362- 170		48-2070
Olympic	" J. J. Moore & Co.	2419	2406- 380		12-1860
Hawaiian Isles	" Hind, Rolph & Co.	2102	2079- 740		22-1500
Willseott	May "	3319	3281- 851		37-1389
Cambrian King	" "	3256	3275-2080	19-2080	
Diamond Head	June "	4882	4890-1716	8-1716	
Jas. Tuft	" "	1441	1421- 930		19-1310
Gamar	July "	1751	1743-1730		7- 510
John Palmer	Aug. "	999	977-1090		21-1150
Adolph	Sept. "	1708	1680-1110		27-1130
Jane L. Stanford	Oct. "	2648	2621- 433		26-1807
Alpena	" J. J. Moore & Co.	1463	1429- 225		33-2015
Mahukona	Nov. Hind, Rolph & Co.	1533	1515- 614		17-1626
Gymeric	Dec. "	1118	1098-1400		19- 840
	" H. M. Newhall & Co.	1520	1462-1270		57- 970
Big Bonanza	1909.				
Inca	Jany. G. W. McNear, Inc.	2013	1791-1160		221-1080
Willis A. Holden	May Hind, Rolph & Co.	1632	1593-1460		38- 780
Theirs	July "	1796	1819-1282	23-1282	
Amazon	Sept. "	3163	3094-1390		68- 850
Invertay	" "	1825	1870-1220	45-1220	
David C. Evans	" H. M. Newhall & Co.	2502	2491- 350		10-1890
A. J. Fuller	" Hind, Rolph & Co.	1233	1227-1040		5-1200
Tymeric	Nov. "	2453	2414- 120		38-2120
Amaranth—	" H. M. Newhall & Co.	1841	1814- 450		26-1790
Puako	Dec. J. J. Moore & Co.	1729	1710-1590		18- 650
Kohala	" Hind, Rolph & Co.	1931	1857-1860		73- 380
Koko Head	" "	1247	1183-2220		63- 26
Polaris	" "	1942	1907-1940		34- 300
	" "	1220	1220		
J. C. Meyer	1910.				
Jas. Johnson	Jany. Hind, Rolph & Co.	1328	1322- 800		5-1440
Koko Head	June "	1574	1631-1151	57-1150	
Lahaina	" "	1866	1862- 930		3-1310
Amazon	" "	1585	1609- 408	24- 408	
Crescent	July "	1825	1779- 750		45-1490
Dartford	" "	2181	2156- 340		24-1900
Forest Home	" "	1739	1716-1800		22- 440
H. K. Hall	" "	1135	1154- 844	19- 844	
John Palmer	" "	1851	1830- 220		20-2020
Thos. P. Emigh	" "	1644	1617-1815		26- 425
Antiope	" "	1615	1631-1080	16-1080	
Geo. E. Billings	Aug. "	1793	1743-1370		49- 870
	" "	1793	1782-1830		10- 410
Forward		339457	337869- 678	1232-1815	2820-1137

The United States of America.

2037

1910.	Forward—	339457	337869— 678	1232-1815	2820-1137
Polaris	Aug. Hind, Rolph & Co.	1204	1209- 110	5- 110	
Alpena	Oct. "	1493	1483-1000		9-1240
Poltalloch	" "	3753	3703- 450		49-1790
Harpeak	Dec. "	5983	5959- 710		23-1530
Jas. Tuft	" "	1692	1682- 70		9-2170
1911.					
J. C. Meyer	Febry. Hind, Rolph & Co.	1318	1330-1892	12-1892	
Koko Head	" "	1873	1801- 942		71-1316
Puritan	" "	3467	3445- 759		21-1481
Puako	" "	1852	1858-1170	6-1170	
Strathblane	" "	5976	5945-1456		30 784
Bells of Scotland	Mar. "	6661	6685- 216	24- 216	
Inca	" "	1601	1601-1400	1400	
Lahanina	" "	1639	1622- 974		16-1266
W. H. Talbot	Apr. "	1224	1213-1442		10- 798
Americano	May "	1320	1324- 526	4- 526	
Antiope	" "	1723	1723- 470	470	
Geo. E. Billings	June "	1822	1816-1579		5- 661
H. K. Hall	" "	1787	1790- 730	3- 730	
Jas. Johnson	" "	1647	1636- 960		10-1280
John Palmer	" "	1636-	1645-1100	9-1100	
Jane L. Stanford	" "	1430	1463- 222	33- 222	
LeRoche Jaquelin	" "	2908	2921- 400	13- 400	
Resolute	" "	985	980-1380		4- 860
Damara	July "	998	1007- 790	9- 790	
Kohala	Aug. "	1257	1266-1700	9-1700	
Makaueli	" "	1333	1331- 860		1-1380
Mahukona	" "	1066	1061- 552		4-1688
W. F. Babcock	" "	2865	2927-2075	62-2075	
British Yeoman	Nov. J. & A. Brown	2940	2875-1980		64- 260
Commerce	" Hind, Rolph & Co.	991	988-1710		2- 530
Puako	" "	1892	1906-2218	14-2218	
Poltalloch	" "	3739	3721- 620		17-1620
Queen Elizabeth	" J. & A. Brown	5871	5832-2190		38- 50
Henrik Ibsen	Dec. "	5833	5799- 130		33-2110
John C. Meyer	" Hind, Rolph & Co.	1310	1309-1950		290
Lord Templetown	" J. & A. Brown	3211	3201-1780		9- 460
Strathgarry	" "	5886	5851-2040		34- 200
W. H. Talbot	" Hind, Rolph & Co.	1239	1229- 950		9-1290
1912.					
Thos. P. Emigh	Jany. Hind, Rolph & Co.	1624	1625-1440	1-1440	
Jas. Johnson	Febry. "	1617	1642-1080	25-1080	
Lahaina	" "	1661	1663-2110	2-2110	
Antiope	Mar. "	2018	2015-1570		2- 670
Espada	" "	1030	1003-1050		26-1190
Americana	Apr. "	1273	1259-2140		13- 100
Geo. E. Billings	" "	1874	1842-2210		31- 30
H. K. Hall	" "	1822	1826- 780	4- 780	
Battle Abbey	May "	2305	2240- 647		64-1593
Forward		450106	448145-1430	1476-2084	3437- 654

[1799-1734]

	Forward	235301	234674- 905	949-1766	1576- 861
Rygja	1908.				
Strathdon	Feb'y. E. C. Evans	5346	5397- 698	51- 698	
Jas. Drummond	" Hind, Rolph & Co.	5924	5884-1470		39- 770
Kelvinbank	Mar. "	1970	1941-1600		28- 640
Kaialani	" "	5000	4995-1266		4- 974
G. S. Carleton	" J. J. Moore & Co.	2320	2308-1330		11- 910
Chas. E. Moody	" J. & A. Brown	2570	2586- 770	16- 770	
A. J. Fuller	" G. W. McNear, Inc.	2411	2362- 170		48-2070
Olympic	" J. J. Moore & Co.	2419	2406- 380		12-1860
Hawaiian Isles	" Hind, Rolph & Co.	2102	2079- 740		22-1500
Willscott	May "	3319	3281- 851		37-1389
Cambrian King	" "	3256	3275-2080	19-2080	
Diamond Head	June "	4882	4890-1716	8-1716	
Jas. Tuft	" "	1441	1421- 930		19-1310
Gamar	July "	1751	1743-1730		7- 510
John Palmer	Aug. "	999	977-1090		21-1150
Adolph	Sept. "	1708	1680-1110		27-1130
Jane L. Stanford	Oct. "	2648	2621- 433		26-1807
Alpena	" J. J. Moore & Co.	1463	1429- 225		33-2015
Mahukona	Nov. Hind, Rolph & Co.	1533	1515- 614		17-1626
Gymeric	Dec. "	1118	1098-1400		19- 840
	" H. M. Newhall & Co.	1520	1462-1270		57- 970
Big Bonanza	1909.				
Inca	Jany. G. W. McNear, Inc.	2013	1791-1160		221-1080
Willis A. Holden	May Hind, Rolph & Co.	1632	1593-1460		38- 780
Theirs	July "	1796	1819-1282	23-1282	
Amazon	Sept. "	3163	3094-1390		68- 850
Invertay	" "	1825	1870-1220	45-1220	
David C. Evans	" H. M. Newhall & Co.	2502	2491- 350		10-1890
A. J. Fuller	" Hind, Rolph & Co.	1233	1227-1040		5-1200
Tymeric	Nov. "	2453	2414- 120		38-2120
Amaranth—	" H. M. Newhall & Co.	1841	1814- 450		26-1790
Puako	Dec. J. J. Moore & Co.	1729	1710-1590		18- 650
Kohala	" Hind, Rolph & Co.	1931	1857-1860		73- 380
Koko Head	" "	1247	1183-2220		63- 20
Polaris	" "	1942	1907-1940		34- 300
	" "	1220	1220		
J. C. Meyer	1910.				
Jas. Johnson	Jany. Hind, Rolph & Co.	1328	1322- 800		5-1440
Koko Head	June "	1574	1631-1151	57-1150	
Lahaina	" "	1866	1862- 930		3-1310
Amazon	" "	1585	1609- 408	24- 408	
Crescent	July "	1825	1779- 750		45-1490
Dartford	" "	2181	2156- 340		24-1900
Forest Home	" "	1739	1716-1800		22- 440
H. K. Hall	" "	1135	1154- 844	19- 844	
John Palmer	" "	1851	1830- 220		20-2020
Thos. P. Emigh	" "	1644	1617-1815		26- 425
Antiope	" "	1615	1631-1080	16-1080	
Geo. E. Billings	Aug. "	1793	1743-1370		49- 870
	" "	1793	1782-1830		10- 410

Forward

339457

337869- 678

1232-1815

2820-1137

[1798-1733]

	1910.	Forward—	339457	337869- 678	1232-1815	2820-1137
Polaris	Aug.	Hind, Rolph & Co.	1204	1209- 110	5- 110	
Alpena	Oct.	"	1493	1483-1000		9-1240
Poltalloch	"	"	3753	3703- 450		49-1790
Harpeak	Dec.	"	5983	5959- 710		23-1530
Jas. Tuft	"	"	1692	1682- 70		9-2170
	1911.					
J. C. Meyer	Feby.	Hind, Rolph & Co.	1318	1330-1892	12-1892	
Koko Head	"	"	1873	1801- 942		71-1316
Puritan	"	"	3467	3445- 759		21-1481
Puako	"	"	1852	1858-1170	6-1170	
Strathblane	"	"	5976	5945-1456		30 784
Bells of Scotland	Mar.	"	6661	6685- 216	24- 216	
Inca	"	"	1601	1601-1400	1400	
Lahanina	"	"	1639	1622- 974		16-1266
W. H. Talbot	Apr.	"	1224	1213-1442		10- 798
Americano	May	"	1320	1324- 526	4- 526	
Antiope	"	"	1723	1723- 470	470	
Geo. E. Billings	June	"	1822	1816-1579		5- 661
H. K. Hall	"	"	1787	1790- 730	3- 730	
Jas. Johnson	"	"	1647	1636- 960		10-1280
John Palmer	"	"	1636-	1645-1100	9-1100	
Jane L. Stanford	"	"	1430	1463- 222	33- 222	
LeRoche Jaquelin	"	"	2908	2921- 400	13- 400	
Resolute	"	"	985	980-1380		4- 860
Damara	July	"	998	1007- 790	9- 790	
Kohala	Aug.	"	1257	1266-1700	9-1700	
Makauei	"	"	1333	1331- 860		1-1380
Mahukona	"	"	1066	1061- 552		4-1688
W. F. Babcock	"	"	2865	2927-2075	62-2075	
British Yeoman	Nov.	J. & A. Brown	2940	2875-1980		64- 260
Commerce	"	Hind, Rolph & Co.	991	988-1710		2- 530
Puako	"	"	1892	1906-2218	14-2218	
Poltalloch	"	"	3739	3721- 620		17-1620
Queen Elizabeth	"	J. & A. Brown	5871	5832-2190		38- 50
Henrik Ibsen	Dec.	"	5833	5799- 130		33-2110
John C. Meyer	"	Hind, Rolph & Co.	1310	1309-1950		290
Lord Templetown	"	J. & A. Brown	3211	3201-1780		9- 460
Strathgarry	"	"	5886	5851-2040		34- 200
W. H. Talbot	"	Hind, Rolph & Co.	1239	1229- 950		9-1290
	1912.					
Thos. P. Emigh	Jany.	Hind, Rolph & Co.	1624	1625-1440	1-1440	
Jas. Johnson	Feby.	"	1617	1642-1080	25-1080	
Lahaina	"	"	1661	1663-2110	2-2110	
Antiope	Mar.	"	2018	2015-1570		2- 670
Espada	"	"	1030	1003-1050		26-1190
Americana	Apr.	"	1273	1259-2140		13- 100
Geo. E. Billings	"	"	1874	1842-2210		31- 80
H. K. Hall	"	"	1822	1826- 780	4- 780	
Battle Abbey	May	"	2305	2240- 647		64-1593
	Forward		450106	448145-1430	1476-2084	3437- 654

Forward		450106	448145-1430	1476-2084	3437- 654
1912.					
Georgina	May	J. J. Moore & Co.	1387	1356-1550	30- 690
Kohala	"	Hind, Rolph & Co.	1273	1227- 220	45-2020
Titania	"	J. J. Moore & Co.	4236	4172-1940	63- 300
Dunsyre	June	J. & A. Brown	3490	3413-1980	76- 260
Kahukona	"	Hind, Rolph & Co.	1093	1077- 514	15-1726
River Forth	"	J. J. Moore & Co.	4675	4611- 480	63-1760
Hecla	Aug.	Hind, Rolph & Co.	2127	2077- 520	49-1720
Koko Head	"	"	1931	1902- 610	28-1630
Ikalis	"	J. J. Moore & Co.	3969	3981-1135	12-1135
Ikala	Sept.	"	4283	4203-2230	79- 10
Poltalloch	"	Hind, Rolph & Co.	3812	3723-2140	88- 100
Titania	"	J. J. Moore & Co.	4829	4771-2040	57- 200
Antiope	Nov.	Hind, Rolph & Co.	2080	2057-1910	22- 330
Lord Templetown	"	"	3256	3220-1040	35-1200
British Yoeman	Dec.	"	2910	2871- 950	38-1290
Drummuir	"	"	2825	2724-2190	100- 50
1913.					
Americana	Jany.	Hind, Rolph & Co.	1291	1259-1160	31-1080
Aurora	Feby.	"	1794	1778- 530	15-1710
Aloha	Mar.	"	1250	1242- 380	7-1860
Manningtry	Apr.	Davies & Fehon	5032	4975- 550	56-1690
Jas. Johnson	"	J. & A. Brown	1603	1591-1570	11- 670
Battle Abbey	May	Hind, Rolph & Co.	2311	2274- 190	36-2050
Hecla	July	J. & A. Brown	2104	2082- 340	21-1900
Wm. T. Lewis	"	Hind, Rolph & Co.	3467	3432- 190	34-2050
Totals			517134	514175- 909	1489- 979 4448- 70

Net Shortage—2,958-1331 tons.

Percentage—.0057

[1800—1735]

Importations of Australian Coal, April 1, 1906—July 25, 1913.
Discharged by Pacific Coast Coal Company and Jas. P. Taylor.

Name of Vessel.	Date.	Consignees.	Weight. B/L	Weight. C. H.	Over.	Short.
	1906.					
Oceano	Apr.	Hind, Rolph & Co.	6,018	6,008- 950		9-1290
Sea King	"	"	2,114	2,103-1210		10-1030
Andromeda	"	"	1,716	1,736- 905	20- 905	
Beaumanoir	May	"	2,195	2,161- 320		33-1920
James Johnson	July	"	1,674	1,663- 520		10-1720
Juteopolis	Sept.	J. & A. Brown	4,330	4,394- 559	64- 559	
	1907.					
African Monarch	Jany.	Hind, Rolph & Co.	5,327	5,315-1370		11- 870
Rhode Fagelund	"	J. J. Moore & Co.	4,004	3,920-1000		83-1240
Aymeric	Feby.	J. & A. Brown	5,800	5,766- 723		33-1517
Andromeda	"	Hind, Rolph & Co.	1,756	1,763- 52	7- 52	
Henry Failing	"	J. & A. Brown	2,411	2,436-2077	25-2077	
Kirklee	Mar.	Hind, Rolph & Co.	4,645	4,629- 182		15-2058
Reuce	May	J. & A. Brown	2,340	2,339-1968		- 272
Sea King	"	"	2,130	2,138-1082	8-1082	
Inverie	"	"	5,750	5,802- 129	52- 129	
Foreric	July	H. M. Newhall & Co.	5,158	5,218- 642	60- 642	
Hawaiian Isles	Aug.	Hind, Rolph & Co.	3,336	3,305-1836		30- 404
Kalamo	"	J. J. Moore & Co.	5,784	5,826-2145	42-2145	
Armen	"	J. & A. Brown	3,000	3,032-1280	32-1280	
Dumfermline	Sept.	"	4,200	4,239- 103	39- 103	
Queen Cristina	Oct.	G. W. McNear & Co.	5,103	5,006-1270		96- 970
Ormidale	"	E. C. Evans	4,545	4,504-1700		40- 540
Jethou	Nov.	J. J. Moore & Co.	5,830	5,871- 875	41- 875	
Kentmere	"	J. A. Brown	3,620	3,652- 273	32- 273	
Titania	"	Hind, Rolph & Co.	5,060	5,044-1530		15- 710
Kohala	Dec.	"	1,326	1,328-1440	2-1440	
Cambrian King	"	J. & A. Brown	4,820	4,913-1438	93-1438	
Juteopolis	"	"	4,310	4,359-1870	49-1870	
Riverdale	"	J. J. Moore & Co.	5,898	5,932- 940	34- 940	
R. C. Rickmers	"	E. C. Evans	6,668	6,591-1550		76- 690
	1908.					
Daylight	Feby.	J. & A. Brown	4,900	4,820-1978		79- 262
Amazon	"	G. W. McNear, Inc.	1,891	1,829- 220		61-2020
Adderley	Mar.	"	1,911	1,830-2160		80- 80
Marconi	"	"	1,270	1,236-1302		33- 938
Quito	"	J. & A. Brown	4,135	4,169-1010	34-1010	
H. K. Hall	Apr.	Hind, Rolph & Co.	1,884	1,886-2180	34- 320	
Strathord	"	J. & A. Brown	5,988	5,906-2136		81- 104
Antiope	May	"	2,085	2,079- 62		5-2178
James Johnson	"	Hind, Rolph & Co.	1,633	1,619- 729		13-1511
Minnie A. Caine	"	J. & A. Brown	1,320	1,315-1830		4- 410
St. David	"	"	2,185	2,146-2040		38- 200
Lahaina	"	Hind, Rolph & Co.	1,626	1,643- 320	17- 329	
Wm. F. Garms	"	"	1,602	1,595-1080		6-1160
Drummuir	June	J. & A. Brown	2,711	2,684- 49		26-2191
Hecla	"	"	2,152	2,128-1969		23- 271
St. James	"	"	2,269	2,215-2187		53- 53
Amaranth	"	"	1,753	1,728-1390		24- 850

Forward

162,183

161,845- 821

661-1400

999- 579

Name of Vessel.	Date.	Forward Consignees.	162,183 B/L Weight.	161,845- 821 C. H. Weight.	661-1400 Over.	999- 579 Short.
St. Francis	July 1908.	J. & A. Brown	2,484	2,396- 46		87-2194
Charmer	Aug.	"	2,296	2,262-1984		33- 256
Edward R. West	Sept.	"	1,277	1,289- 140	12- 140	
Everett G. Griggs	"	"	3,845	3,836- 257		8-1983
Pactolus	"	"	2,483	2,519-1617	36-1617	
Amazon	Nov. 1909.	Hind, Rolph & Co.	1,900	1,889-1900		10- 340
Reuce	Jany.	J. & A. Brown	2,463	2,326-1789		136- 451
Henry Failing	Feby.	"	2,411	2,449-1760	38-1760	
Brenn	Mar.	"	2,990	2,950- 360		39-1880
Amaranth	"	Hind, Rolph & Co.	1,783	1,752-1950		30- 290
Janeta	Aug.	J. & A. Brown	4,997	4,884- 694		112-1546
Strathgryfe	"	"	3,540	3,450-1222		89-1018
Ville de Mulhouse	"	"	3,850	3,789-1285		60- 955
Brenn	Sept.	"	3,034	2,993- 182		40-2058
Maglala	"	"	5,711	5,684- 84		26-2155
Geo. E. Billings	Oct.	"	1,860	1,829-1953		30- 287
Bannockburn	"	"	1,860	1,829-1953		30- 287
Bourbaki	"	"	6,741	6,612-1073		128-1167
Induna	"	"	5,191	5,042-1286		148- 952
Antiope	Nov.	"	2,105	2,091- 546		13-1694
Katanga	Dec. 1910.	"	4,250	4,196-1172		53-1068
Alpena	Jany.	J. & A. Brown	1,536-	1,510- 858		25-1382
Jas. Tuft	"	"	1,723	1,728- 740	5- 740	
Inca	Feby.	"	1,610	1,608- 359		1-1881
Century	Apr.	"	5,117	5,222- 476	105- 476	
English Monarch	"	"	6,088	6,110- 928	22- 928	
M. S. Dollar	June	"	5,213	5,141-1412		71- 828
British Yeoman	July	"	2,930	2,898-1171		31-1069
Tordenskjold	"	"	5,126	5,053- 940		72-1300
Gen. de Negrier	Aug.	"	3,041	3,024-2097		16- 143
Bourbaki	"	"	3,018	2,987-1530		30- 710
Dumferline	Sept.	"	4,219	4,170-1966		48- 274
Kinross-Shire	"	"	3,777	3,760-1427		16- 813
La Fontaine	"	"	2,953	2,928-1990		24- 250
Strathtay	Oct.	"	6,024	5,840- 302		183-1938
Alice A. Leigh	"	"	4,542	4,463-1590		78- 650
Bretagne	"	"	2,990	2,976- 866		13-1374
Forfarshire	Nov.	"	2,016	2,003- 724		12-1516
Strathlorne	"	"	6,000	5,937-1139		62-1101
Rene	"	"	3,180	3,180-1201	-1201	
Quito	Dec.	"	1,238	1,229- 830		8-1410
Bossuet	"	"	3,020	2,967-1340		52- 900
Oceano	"	"	4,977	4,939-2189		37- 51
Dunsyre	1911.					
Lord Templetown	Feby.	J. & A. Brown	3,500	3,457- 910		42-1330
F. M. Slade	"	"	3,275	3,211-1800		63- 440
Watson A. West	"	"	1,025	1,015-2050		9- 190
	"	"	1,322	1,306-1920		15- 320

Forward

316,854

314,769-1117

882-1542

2,967- 425

[1802-1737]

		Forward	316,854 B/L	314,769-1117 C. H.	882-1542	2,967- 425
Name of Vessel.	Date.	Consignees.	Weight.	Weight.	Over.	Short.
Linieric	1911.	J. & A. Brown	5,976	5,860- 670		115-1570
Abner Coburn	Mar.	"	2,569	2,530- 550		38-1690
Overic	Apr.	"	4,461	4,415- 870		25-1370
Actolus	May	"	2,374	2,344-2130		29- 110
Knight of St. Geo.	June	"	5,093	5,067- 260		45-1980
Rosamond	"	"	1,493	1,483- 90		9-2150
Amaranth	Sept.	"	1,710	1,731-1210	21-1210	
Strathardle	"	"	5,085	4,970- 830		114-1410
Watson A. West	"	"	1,310	1,305- 880		4-1360
	Nov.					
Amazon	1912.	J. & A. Brown	1,806	1,773- 370		32-1870
	Jany.					
	1913.					
Crescent	Jany.	J. & A. Brown	2,134	2,105- 180		28-2060
H. K. Hall	Mar.	"	1,817	1,803- 330		13-1910
James Tuft	"	"	1,685	1,687- 740	2- 740	
Polaris	"	"	1,207	1,199- 350		7-1890
Rosamond	Apr.	"	1,477	1,481-1780	4-1780	
Wm. Nottingham	June	"	1,701	1,703-1497	2-1497	
	"	"				
Totals			358,752	356,231- 414	914- 49	3,434-1875

Net Shortage 2,520-1826 tons.
Percentage .0070.

Importations of Australian Coal, April 1, 1906—July 25, 1913.

Discharged by J. J. Moore & Company.

Name of Vessel.	Date.	Consignee.	B/L. Weight.	C. H. Weight	Over.	Short.
Battle Abbey	1906. Apr.	J. J. Moore & Co.	563	544-1980		18- 260
Boverie	1908. Aug.	J. J. Moore & Co.	2,593	2,484- 110		108-2130
Lord Templetown	Sept.	"	3,373	3,240- 725		132-1515
Grande Duchesse						
Olga	Oct.	"	2,810	2,701- 950		108-1290
Lord Lefton	Nov.	H. M. Newhall & Co.	1,005	955-1145		49-1095
Andromeda	Dec.	J. J. Moore & Co.	1,719	1,657-1495		61- 745
	1909.					
Yeddo	Jany.	F. Waterhouse & Co.	1,902	1,902-1775	-1775	
Antiope	Feby.	J. J. Moore & Co.	2,145	2,072-1337		72- 903
James Tuft	Apr.	"	1,748	1,741-1012		6-1228
Walkure	Oct.	"	5,036	5,010-1395		25- 845
	1910.					
Aagot	June	J. J. Moore & Co.	2,875	2,839-1895		35- 345
St. Rogatien	Oct.	"	2,171	2,190-1511	19-1511	
	1911.					
Tordenskjold	July	J. J. Moore & Co.	3,466	3,534-1492	68-1492	
Dartford	Aug.	"	1,021	1,019-1864		1- 376
Anerley	Sept.	"	3,976	3,952-1070		23-1170
River Clyde	Nov.	"	3,563	3,538-1599		24- 641
Hornelen	Dec.	"	3,549	3,529-1710		19- 530
	1912.					
River Forth	Jany.	J. J. Moore & Co.	4,688	4,745- 860	57-860	
		Totals	48,203	47,662-1525	146-1158	686-1873
		Net Shortage 540—715 tons.				
		Percentage .0112				

[1804—1739]

Importations of Australian Coal, April 1, 1906—July 25, 1913.

Discharged by Pacific Fuel Company.

Name of Vessel.	Date.	Consignee.	B/L. Weight.	C. H. Weight.	Over.	Short.
Drummuir	1910. Sept.	J. J. Moore & Co.	992	973-1214		18-1026
	1912.					
Polaris	July	Hind, Rolph & Co.	1,201	1,238-1935	37-1935	
Lahaina	Oct.	"	1,632	1,598-1863		33- 377
Alumna	Nov.	"	1,185	1,179- 162		5-2078
	1913.					
Makaweli	Feby.	Hind, Rolph & Co.	1,353	1,335- 53		17-2187
		Totals	6,363	6,325- 747	37-1935	75-1188
		Net Shortage 37-1493 tons.				
		Percentage .0059				

[1805—1740]

Importations of Australian Coal, April 1, 1906—July 25, 1913.

Discharged by Sundry Firms and Corporations.

Discharged by Southern Pacific Company.

Name of Vessel.	Date.	Consignee.	B/L. Weight.	C. H. Weight.	Over.	Short.
Barbart	1907.	J. J. Moore & Co.	4,798	4,798-1448	8-1448	
African Monarch	Mar.	"	5,042	5,405- 590	3- 590	
Henrik Ibsen	May	"	6,073	6,015- 150		57-2090
Edo	June	H. M. Newhall & Co.	5,803	5,842-1120	39-1120	
En of Airline	Aug.	Hind, Rolph & Co.	4,022	4,050- 930	28- 930	
	Sept.					
		Totals	26,090	26,111-1998	79-1848	57-2090
		Net Over, 21-1998 tons				
		Percentage .0008				

Discharged by Hind, Rolph & Company.

Germanicus	1907.					
	Nov.	Hind, Rolph & Co.	5,193	5,252- 162	59- 162	
Lyndford	1910.					
Overkip	Apr.	Hind, Rolph & Co.	5,361	5,525-1273	164-1273	
	"	"	5,863	6,197- 863	334- 863	
		Totals	16,417	16,975- 58	558- 58	
		Net Over 558-58 tons				
		Percentage .034				

1806—1741]

Importations of Australian Coal, April 1, 1906—July 25, 1913.

Split Cargoes,

Discharged by Two or More Distributors.

Name of Vessel.	Date.	Consignee.	B/L Weight.	C. H. Weight.	Over.	Short.
	1906.					
Henley	Apr.	J. J. Moore & Co.,	4,021	4,006- 283		14-1957
Radiant	July	J. & A. Brown,	3,060	3,126-1150	66-1150	
Brenn	Sept.	Hind, Rolph & Co.,	3,009	3,009-		
Jane Guillon	Oct.	J. & A. Brown,	2,900	2,937- 100	37- 100	
Pierre Antonine	"	Hind, Rolph & Co.,	2,964	2,983-2025	19-2025	
Thyra	Dec.	J. J. Moore & Co.,	2,885	2,873-2003		21- 237
	1907.					
Foreric	Feby.	Hind, Rolph & Co.,	5,185	5,139- 40		45-2200
Bramley	Mar.	J. J. Moore & Co.,	4,119	4,154- 420	35- 420	
Drumcliffe	"	J. & A. Brown,	5,400	5,404- 808	4- 808	
St. Helena	Apr.	J. J. Moore & Co.,	5,666	5,694-1933	23-1933	
Germanicus	May	"	3,260	3,336-2130	76-2130	
Lord Templeton	"	Hind, Rolph & Co.,	3,180	3,161-1798		18- 442
Cape Breton	June	J. J. Moore & Co.,	3,981	3,988- 833	7- 833	
Admiral Borreson	Aug.	Hind, Rolph & Co.,	5,247	5,297-1340	50-1340	
Craighall	Aug.	J. J. Moore & Co.,	4,853	4,789-1220		63-1020
Strathspey	"	Hind, Rolph & Co.,	6,138	6,129-1401		8- 839
Bramley	Sept.	J. J. Moore & Co.,	3,998	3,956- 495		41-1745
Elsa	"	J. & A. Brown,	4,860	4,894-2001	34-2001	
Thode Fagelund	"	W. R. Grace & Co.	5,830	6,024- 387	194- 387	
Terje Viken—	"	J. J. Moore & Co.,	4,990	5,020-1129	30-1129	
Cape Corso	"	"	4,272	4,299-1874	27-1874	
	1909.					
Bayard	July	J. J. Moore & Co.,	2,942	2,915-1680		26- 560
Kilburn	Dec.	"	3,208	3,238- 267	30- 267	
	1910.					
Aagot	Nov.	J. J. Moore & Co.,	4,987	4,909- 516		77-1724
Strathalbyn	"	J. & A. Brown,	5,962	5,910-2160		51- 80
Titania	Dec.	J. J. Moore & Co.,	4,848	4,852-1515	4-1515	
	1911.					
Croydon	Jany.	J. J. Moore & Co.,	5,014	4,953-1797		60- 443
Jas. Tuft	Oct.	"	1,711	1,720-1921	9-1921	
	1912.					
Drummuir	Jany.	J. & A. Brown,	2,786	2,726-1120		59-1120
Artemis	Aug.	"	8,148	8,011- 970		136-1270
Lord Curzon	Sept.	"	4,897	4,894-1500		2- 740
Inveric	Oct.	"	5,843	5,835-1127		7-1113
	1913.					
Geo. E. Billings	Jany.	J. & A. Brown,	1,800	1,806-1840	6-1840	
W. F. Babcock	Apr.	Hind, Rolph & Co.,	2,998	3,006-1448	8-1448	
Totals			144,972	145,011- 911	674- 721	634-2050
Net Over,			39- 911 tons			
Percentage			.00027			

[1807—1742]

Importations of Australian Coal, April 1, 1906—July 25, 1913.

SUMMARY.

Discharged by	B/L. Weights.	C. H. Weights.	Over.	Short.	Net. Short.	%
Western Fuel Co.	517,134	514,175- 909	1,489- 979	4448- 70	2958-1331	.0057
J. J. Moore & Co.	48,203	47,662-1525	146-1158	686-1873	540- 715	.0112
Pac. Coast Coal Co.						
Jas. P. Taylor	358,752	356,231- 414	914- 49	3434-1875	2520-1826	.0070
Pacific Fuel Co.	6,363	6,325- 747	37-1935	75-1188	37-1493	.0059
Totals	930,452	924,394-1355	2,587-1881	8645- 526	6057- 885	.0065
Wholesale						
Dealers	930,452	924,394-1355	2,587-1881	8645- 526	6057- 885	
Two or more						
Distributors	144,972	145,011- 911	674- 721	634-2050	39- 911	
Southern						
Pacific Co.	26,090	26,111-1998	79-1848	57-2090	21-1998	
Hind, Rolph						
Co.	16,417	16,975- 58	558- 58		558- 58	
Totals	1117,931	1112,492-2082	3,900- 28	9338- 186	5438- 158	.0048

[1808—1743]

Importations of Japanese Coal, April 1, 1906—July 25, 1913.
 Discharged by Sundry Firms and Corporations.
 Discharged by Western Fuel Company.

Name of Vessel.	Date.	Consignee.	B/L Weight.	C. H. Weight.	Over.	Short.
Hazel Dollar	Feb'y. 1907.	Mitsui & Co.	3060	2730-1067		329-1173
Shibeton Maru	"	"	3500	3419-2020		80- 220
Bessie Dollar	Mar.	"	4200	4018- 673		181-1567
Jethou	Mar.	J. J. Moore & Co.	5686	5662- 850		23-1390
Amiral Olry	Sept.	Mitsui & Co.	1000	956- 960		43-1280
Belle of Ireland	Oct.	G. W. McNear In.	5600	5465- 150		134-2090
Koah Maru	"	Barneson Hibbert Co.	3435	3418- 184		16-2056
Marcellus	Dec. 1908.	Mitsui & Co.	4460	4147- 630		312-1610
Gymeric	Jany. 1910.	H. M. Newhall & Co.	5250	5112- 899		137-1341
El Lobo	Jany.	Balfour Guthrie & Co.	5500	5256- 267		243-1973
Hercules	Feb'y.	Western Fuel Co.	4507	4393-1880		113- 360
Seminole	"	"	5500	5158- 372		341-1868
Knight of St. Geo.	Mar.	"	6015	5889-1220		125-1020
Strathtay	"	Hind, Rolph & Co.	6400	6186- 590		213-1650
Hazel Dollar	"	Western Fuel Co.	1850	1699-1370		150- 870
Dakotah	Apr. 1913.	"	3500	3425-1614		74- 626
Kenkon Maru #8	Feb'y.	The Robt. Dollar Co.	5100	5212- 630	112- 630	
Robert Dollar	"	"	6500	6566-1060	66-1060	
Thor	Apr.	Western	6600	6458- 790		141-1450
Mathilda	"	G. W. McNear Inc.	5740	5662-1361		77- 879
Artemis	May	The Robt. Dollar Co.	7055	6979-357		75-1883
Totals			100458	97818-1024	178-1690	2818- 666
Net Shortage 2,639—1216 Tons.				Percentage .0263.		

Discharged by Pacific Coast Coal Company.

Seminole	1907.					
Mathilda	Mar.	Pac. Coast Coal Co.	5238	5131- 424		106-1816
Tolosan	June	J. J. Moore & Co.	6100	5887-1325		212- 915
Gymeric	July	H. M. Newhall & Co.	3200	3175-1150		24-1090
Tiberius	Sept.	"	5000	4963-2091		36- 149
Franklyn	Oct.	Mitsui & Co.	6060	6012-1474		47- 766
Tolosan	Nov.	"	6200	6026-1947		173-293
	"	"	2800	2667- 220		132-2020
Glenlogan	1908.					
Wanguard	Jany.	Mitsui & Co.	7100	7030- 238		69-2002
	Feb'y.	"	6020	6105-2140	85-2140	
Totals			47718	47000-2040	85-2140	803- 91
Net Shortage, 717—191 tons.				Percentage .0150		

[1809—1744]

Importations of Japanese Coal, April 1, 1906—July 25, 1913.

Discharged by Sundry Firms and Corporations.

Discharged by Southern Pacific Company.

Name of Vessel.	Date.	Consignee.	B/L Weight.	C. H. Weight.	Over.	Short.
Fotti	1907.					
Halvard	Mar.	J. J. Moore & Co.	3800	3637-1660		162- 580
	Apr.	"	1890	1902-1050	12-1050	
		Totals	5690	5540- 470	12-1050	162- 580
		Net Shortage 149—770 tons.	Percentage .0262			
		Discharged by J. J. Moore & Company.				
	1910.					
River Clyde	Jan.	J. J. Moore & Co.	5435	5436-529	1-529	
		Net Over 1-529 tons.	Percentage .0000			

[1810—1745]

(Testimony of Edward H. Mayer.)

Thereupon, the following proceedings ensued:

Mr. KNIGHT.—We will merely refer to a very few instances, gentlemen, with reference to the first table which I have offered in evidence which consists of importations of Australian coal between April 1, 1906, and July 21, 1913, that were discharged at this port by the Western Fuel Company; I would call your attention to an overage occurring, for instance, with reference to the ship “Indian Monarch,” which was discharged in September, 1907, consigned to Barneson, Hibberd Company, and containing a shortage—that is, the custom-house weights were short of the bill of lading weights by 158 tons, 2040 lbs., on a total of 5757 tons, or almost 3 per cent.

Another shortage on the ship “Quito,” discharged in November, 1907, consigned to H. M. Newhall & Company, the shortage being 128 tons, 970 lbs., on a total of 4325 tons, or a trifle less than 3 per cent.

Another shortage occurring with reference to the steamer “Indra,” discharged January, 1908, consigned to G. W. McNear, Incorporated, which was 268 tons, 1868 lbs., on a total of 7278 tons.

* * * * *

Mr. KNIGHT.—The total percentage of shortage, that is, the difference between the bill of lading weights and the custom-house weights was about half of one per cent; that is, 57 one-hundredths of one per cent. That is the percentage of net shortage, the net shortage being 2958 tons, 1331 lbs.

With reference to the importations of Australian coal between the same dates, discharged by the Pacific

(Testimony of Edward H. Mayer.)

Coast Coal Company and James P. Taylor, consigned to various consignees, I would call your attention to a shortage with reference [1811—1746] to the steamer "Ruth," which was discharged here January, 1909, consigned to J. & A. Brown, and discharged by the Pacific Coast Coal Company, the net shortage being 136 tons, 451 lbs., out of a total cargo or bill of lading weight of 2463 tons, which is approximately over 5 per cent, rather nearer 6 per cent.

Again a shortage occurring on the steamer "Induna," discharged October, 1909, consigned to J. & A. Brown, and with reference to which the shortage was 148 tons, 954 lbs., on a total cargo of 5191 tons, or approximately a trifle under 3 per cent.

Again a shortage which occurred in connection with the steamer "Strathtay," discharged by the Pacific Coast Coal Company in October, 1910, and consigned to J. & A. Brown, in which instance the shortage amounted to 183 tons, 1938 lbs., on a total cargo of 6024 tons, or a trifle over 3 per cent.

I am not calling your attention to all of these instances; simply those as I note them hurriedly which appear to be the most marked. For instance, one here in connection with the steamer "Strathardle" which was discharged in September, 1911, discharged by the Pacific Coast Coal Company, consigned to J. & A. Brown, and in which instance the shortage was 114 tons, 1410 lbs., on a total cargo of 5085 tons, or between 2 and 3 per cent, a little over 2 per cent.

The net shortages in the case of the Pacific Coast

(Testimony of Edward H. Mayer.)

Coal Company amount to seven one-thousandths of one per cent.

On the importation of Australian coal discharged by J. J. Moore & Company, I will call your attention to one or two items of shortage, the first being the "Lord Templeton" which was discharged by J. J. Moore & Company in September, [1812—1747] 1908, consigned to J. J. Moore & Company, in which the shortage was 132 tons, 1515 lbs. on a total cargo of 3373 tons, or about 4 per cent; similarly on the "Grand Duchess Olga," which was discharged at this port in October, 1908, consigned to J. J. Moore & Company, in which the shortage was 108 tons, 1290 lbs. on a total cargo of 2810 tons, or a little less than 4 per cent.

With reference to the importation of Australian coal during that time discharged by J. J. Moore & Company, the percentage is 0.0112 per cent; that is to say, that was the net shortage. Similar importations of the same kind of coal, between those dates, discharged by the Pacific Fuel Company, and without going into any details the percentage of net shortage is 0.0059 per cent.

Mr. ROCHE.—Mr. Knight, do you know whether those are split cargoes, or not?

Mr. KNIGHT.—No, I don't understand that those are split cargoes. We have a table of split cargoes, Mr. Roche, which will appear a little later on.

On the importation of Australian coal, between the same dates, discharged by sundry firms and corporations, J. J. Moore & Company, H. M. Newhall & Com-

(Testimony of Edward H. Mayer.)

pany, Rolph, Hind & Company, the net percentage of shortage is 0.0008.

On cargoes of the same kind of coal, between the same dates, discharged by the Hind, Rolph Company; that is, three cargoes, the percentage of overage is 0.34 per cent.

Mr. ROCHE.—In that previous table that you read from, Mr. Knight, the coal there was discharged, according to your table, by the Southern Pacific Company; is not that so? [1813—1748]

Mr. KNIGHT.—By the Southern Pacific Company. Didn't I so state?

Mr. ROCHE.—No, I don't think so.

Mr. KNIGHT.—That was 0.0008 of one per cent.

On the importation of Australian coal between those same dates, on split cargoes, discharged by two or more distributors, the net overage amounts to 0.00027 per cent. The consignees include J. J. Moore & Company, J. & A. Brown, Hind, Rolph & Company, and quite a number of different consignees.

The last table is a summary containing virtually what I have heretofore stated.

* * * * *

With reference to the importation of Japanese coal between April 1, 1906, and July 25, 1913, discharged by sundry firms and corporations, the tables show that of this character of coal discharged by the Western Fuel Company, although variously consigned, the net percentage of shortage between custom-house weights and bill of lading weights is 0.0263 per cent. The same kind of coal, Japanese coal, discharged by

(Testimony of Edward H. Mayer.)

the Pacific Coast Company and variously consigned, between the same dates, shows a total shortage of .0150 per cent.

On Japanese coal discharged by the Southern Pacific Company and consigned to J. J. Moore & Company shows a total net shortage of 0.0262 per cent.

A cargo of coal discharged by J. J. Moore & Company, from the steamer "River Clyde" showed one ton over; that is, there were 5435 tons in the bill of lading weight and 5436 tons and 529 lbs. was the out-turn weight. [1814—1749]

(2) Defendants' Exhibit "MM," being a table of foreign coal cargoes discharged by the Western Fuel Company during the period April 1, 1906, to and including December 31, 1912, exclusive of Japanese cargoes and cargoes loaded in whole or in part at Northfield, B. C., said table showing the date of entry of the vessel, the name of the vessel, the name of the consignees, the loading weight, the custom-house weight, and the overs and shorts as the case might be.

It was explained that this table showed the following consignees: Western Fuel Company, J. & A. Brown, Hind, Rolph & Co., J. J. Moore & Company, H. M. Newhall & Company, Barneson, Hibberd & Company, E. C. Evans & Sons, G. W. McNear, Inc., Mitsui & Co., Balfour, Guthrie & Co., and Davies & Schon, Ltd.

Said Defendants' Exhibit "MM" is in words and figures as follows, to wit: [1815—1750]

[Defendants' Exhibit "MM"—Table Showing Foreign Coal Cargoes Discharged by Western Fuel Company, April 1, 1906—December 31, 1912.]

Foreign Coal Cargoes Discharged by Western Fuel Company,
April 1, 1906—December 31, 1912,
Exclusive of Japanese Cargoes and Cargoes Loaded in Whole or in Part
at Northfield, B. C.

Date of Entry.	Name of Vessel.	Consignees.	Loading Weight.	Custom-house Weight.	Over.	Short.
1906						
April	Reidar	W. F. Co.	5812-	5715-1130		96-1110
May	Blackheath	"	4033-	4010-1890		22- 350
"	Terje Viken	"	5774-	5689- 840		84-1400
"	Tellus	"	3605-	2994- 760	389- 760	
"	Wellington	"	2265-	2248- 220		16-2020
June	Tonawanda	J. & A. B.	3000-	3000-		
"	Wellington	W. F. Co.	2253-	2276-1660	23-1660	
July	Terje Viken	"	5743-	5603-1730		139- 510
"	Titania	"	5694-	5680- 470		13-1770
"	"	"	5655-	5554- 880		100-1360
"	Wellington	"	2270-	2284- 860	14- 860	
Aug.	Titania	"	5862-	5702-2012		159- 228
"	Terje Viken	"	5685-	5572-1380		112- 860
"	Radiant	J. & A. B.	1591-1230	1591-1230		
Sept.	Titania	W. F. Co.	5797-	5678-1100		118-1140
"	Terje Viken	"	5861-	5619-1200		241-1040
"	"	"	5908-	5758- 950		149-1290
"	Blackheath	"	3506-	3499- 760		6-1480
"	Brenn	H. R. & Co.	1509-1260	1509-1260		
Oct.	Tellus	W. F. Co.	3818-	3642-1740		175- 500
"	Tordenskjold	"	5910-	5727- 430		182-1810
"	Terje Viken	"	5903-	5809- 740		93-1500
"	Blackheath	"	3705-	3803-1640	98-1640	
"	Pierre Antoine	H. R. & Co.	481-2160	481-2160		
"	Versailles	"	2993- 181	2993- 181		
"	Jane Guillon	J. & A. B.	2337-1700	2337-1700		
Nov.	Tellus	W. F. Co.	3860-	3785-1790		74- 450
Dec.	Sheila	"	6061-	5939- 210		121-2030
"	Tordenskjold	"	5770-	5803-1270	33-1270	
"	Thyra	J. J. M. & Co.	1666- 383	1666- 383		
1907						
Jan.	Sheila	W. F. Co.	5591-	5471-1430		119- 810
"	Tellus	"	3752-	3644-2220		107- 20
"	Wellington	"	2312-	2237-1140		74-1100
"	Thode Fagelund	J. J. M. & Co.	3382- 420	3382- 420		
"	African Monarch	H. R. & Co.	2319-1250	2319-1250		
Feb.	Sheila	W. F. Co.	5714-	5653-2160		60- 80
"	Tordenskjold	"	5907-	5630- 400		276-1840
"	Boveric	H. M. N. & Co.	5689-	5828- 960	139- 960	
"	Amyeric	J. & A. B.	2658- 900	2658- 900		
"	Foreric	H. R. & Co.	2229-1760	2229-1760		

[1816—1751]

Date of Entry.	Name of Vessel.	Consignees.	Loading Weight.	Custom-house Weight.	Over.	Short.
1907						
March	Sheila	W. F. Co.	5760-	5621- 930		138-1310
"	Tellus	"	3529-	3494-1880		34- 360
"	"	"	3558-	3487-1970		70- 270
"	Como	J. J. M. & Co.	5866-	5926-1724	60-1724	
"	Drumcliffe	J. & A. B.	959-2060	959-2060		
"	Tiberius	H. R. & Co.	5682-	5690-1390	8-1390	
"	Wellington	W. F. Co.	2313-	2265-1670		47- 570
April	"	"	2318-	2293-1500		24- 740
"	Tordenskjold	"	5869-	5570- 650		298-1590
"	Wellington	"	2358-	2286- 560		71-1680
"	Irish Monarch	H. R. & Co.	5726-	5726-1160	-1160	
"	Norman Isles	"	4694-	4796-2120	102-2120	
"	Bramley	J. J. M. & Co.	2606- 80	2606- 80		
May	Titania	W. F. Co.	5801-	5757- 320		43-1920
"	Tellus	"	3621-	3576-1030		44-1210
"	St. Helena	J. J. M. & Co.	2017- 910	2017- 910		
"	Antiope	H. R. & Co.	2036-	2036- 410	- 410	
"	Lord Templetown	"	1024- 110	1024- 110		
June	Tordenskjold	W. F. Co.	5653-	5602-1760		50- 480
"	Germanicus	J. J. M. & Co.	2169- 830	2169- 830		
"	Arion	J. & A. B.	4890-	4903- 350	13- 350	
"	Cape Breton	J. J. M. & Co.	3013- 90	3013- 90		
"	Oregon	W. F. Co.	267-	250-1828		16- 412
July	Tellus	"	3630-	3541- 160		88-2080
"	Thyra	J. J. M. & Co.	5385-	5386- 548	1- 548	
"	Williscott	H. R. & Co.	3241-	3267- 210	26- 210	
"	Earl of Douglas	H. M. N. & Co.	5898-	5962- 420	64- 420	
Aug.	W. H. Smith	J. & A. B.	2410-	2393- 550		16-1690
"	Strathspey	H. R. & Co.	1387- 740	1387- 740		
"	Craighall	J. J. M. & Co.	1944- 850	1944- 850		
"	Jethou	H. R. & Co.	5880-	5916- 150	36- 150	
"	Amiral Borreson	"	1265- 710	1265- 710		
Sept.	Wellington.	W. F. Co.	2310-	2247-1390		62- 850
"	"	"	2282-	2282-1650	-1650	
"	Barkston	H. M. N. & Co.	5831-	5734-1340		96- 900
"	A. J. Fuller	J. & A. B.	2410-	2431-1310	21-1310	
"	Scottish Monarch	"	5832-	5763- 900		88-1340
"	Bramley	J. J. M. & Co.	3590- 530	3590- 530		
"	Indian Monarch	B. H. & Co.	5757-	5598- 200		158-2040
"	Aeon	H. M. N. & Co.	5789-	5772- 920		16-1320
Oct.	Heracles	"	5712-	5655-		57-
"	Strathmain	J. J. M. & Co.	6007-	6017- 200	10- 200	
"	Eir	H. M. N. & Co.	5514-	5510-1670		3- 570
"	Hatasu	J. & A. B.	3720-	3726- 50	6- 50	
"	Borderer	J. J. M. & Co.	5893-	5934- 590	41- 590	
Nov.	Quito	H. M. N. & Co.	4325-	4196-1270		128- 970
"	Oceano	"	6048-	6045- 900		2-1340
"	Queen Louise	H. R. & Co.	4265-	4313-2120	48-2120	
"	Craighall	J. J. M. & Co.	5630-	5681- 590	51- 590	

[1817-1752]

Date of Entry.	Name of Vessel.	Consignees.	Loading Weight.	Custom-house Weight.	Over.	Short.
1907						
Nov.	Boverie	J. & A. B.	5770-	5852-1510	82-1510	
"	Fitzclarence	H. R. & Co.	5105-	5220- 340	115- 340	
"	Wellington	W. F. Co.	2275-	2272-2230		2- 10
Dec.	Titania	"	5787-	5691-2010		95- 230
"	Craigvar	E. C. E.	5910-	5772- 510		137-1730
"	Kelvinbank	H. R. & Co.	4777-	4747-1310		29- 930
"	Forerie	H. M. N. & Co.	4696-	4733- 380	37- 380	
"	Wellington	W. F. Co.	2269-	2232-1160		36-1080
1908.						
Jan.	Hornelen	W. F. Co.	6425-	6089-2089		335- 151
"	Bankfield	E. C. E.	5162-	5135-1890		26- 350
"	Firm	H. M. N. & Co.	5424-	5462-1940	38-1940	
"	Indra	G. W. McN.	7278-	7009- 372		268-1868
Feb.	Cecil	H. R. & Co.	4821-	4777-1090		43-1150
"	Yeddo	H. M. N. & Co.	5234-	5179-1065		54-1175
"	Camphill	J. J. M. & Co.	4798-	4818- 690	20- 690	
"	Thyra	H. R. & Co.	5180-	5110- 911		69-1329
"	Rivenforth	G. W. McN.	6140-	6040- 630		125-1610
"	Aeon	H. M. N. & Co.	5558-	5559-2090	1-2090	
Mar.	Levi G. Burgess	H. R. & Co.	2173-	2173-		
"	J. H. Lunsman	J. J. M. & Co.	1755-	1696-1940		53- 300
"	Inveric	H. M. N. & Co.	5892-	5885-1440		6- 800
"	Columbia	J. J. M. & Co.	2220-	2220-		
"	Rygja	E. C. E.	5346-	5397- 698	51- 698	
"	Oriana	G. W. McN.	4550-	4381- 500		168-1740
"	Strathdon	H. R. & Co.	5924-	5884-1470		39- 770
"	Nederland	"	5345-	5358- 864	13- 864	
"	Kelvinbank	"	5000-	4995-1266		4- 974
"	Andromeda	"	416-	432-2050	16-2050	
Apr.	Tordenskjold	W. F. Co.	5820-	5600- 730		219-1510
"	Thor	"	7230-	7141-1420		88- 820
"	S. D. Carleton	J. & A. B.	2570-	2586- 770	16- 770	
"	Kaiulani	J. J. M. & Co.	2320-	2308-1330		11- 910
"	Lucile	H. R. & Co.	1950-	1950-		
"	Jas. Drummond	"	1970	1941-1600		28- 640
"	Isaac Reed	J. J. M. & Co.	1957-	1957-		
"	A. J. Fuller	J. J. M. & Co.	2419-	2406- 380		12-1860
May	Tordenskjold	W. F. Co.	5960-	5846- 980		113-1260
"	Olympic	H. R. & Co.	2102-	2079- 740		22-1500
"	Suveric	H. M. N. & Co.	8833-	8318-2000		14- 240
"	Hawaiian Isles	H. R. & Co.	3319-	3281- 851		37-1389
June	Titania	W. F. Co.	5899-	5805-1910		93- 330
"	Tordenskjold	"	5940-	5841-1170		98-1070
"	Cambrian King	H. R. & Co.	4882-	4890-1716	8-1716	
"	Williscote	"	3256-	3275-2080	19-2080	
"	Chas. E. Moddy	G. W. McN.	2411-	2411-		
"	Diamond Head	H. R. & Co.	1441-	1421- 930		19-1310
"	Jane L. Stanford	J. J. M. & Co.	1463-	1429- 225		33-2015

[1818-1758]

Date of Entry.	Name of Vessel.	Consignees.	Loading Weight.	Custom- house Weight.	Over.	Short.
1908.						
July	Titania	W. F. Co.	5847-	5722- 640		124-1600
"	James Tuft	H. R. & Co.	1751-	1743-1730		7- 510
Aug.	Titania	W. F. Co.	5840-	5737- 420		102-1820
Sept.	"	"	5704-	5616- 600		87-1640
"	Tordenskjold	"	5892-	5738-1610		153- 630
"	Samar	H. R. & Co.	999-	977-1090		21-1150
"	John Palmer	"	1708-	1680-1110		27-1130
Oct.	Thor	W. F. Co.	7435-	7290- 460		144-1780
"	Adolf	H. R. & Co.	2648-	2621- 433		26-1807
Nov.	Tordenskjold	W. F. Co.	5927-	5813- 490		113-1750
"	Wellington	"	2348-	2281-1950		66- 290
Dec.	Titania	"	5850-	5791- 440		58-1800
"	Alpena	H. R. & Co.	1533-	1515- 614		17-1626
"	Gymeric	H. M. N. & Co.	1520-	1462-1270		57- 970
"	Wellington	W. F. Co.	2272-	2228- 280		43-1960
"	"	"	2264-	2226-1250		37- 990
1909.						
Jan.	Thor	W. F. Co.	7211-	7110-1439		100- 801
"	Big Bananza	G. W. McN.	2013-	1791-1160		221-1080
"	Mahukona	H. R. & Co.	1118-	1098-1400		19- 840
Feb.	Wellington	W. F. Co.	2367-	2296-2180		70- 60
"	Wellington	W. F. Co.	2260-	2203-1230		56-1010
Mar.	Tordenskjold	"	6000-	5920- 10		79-2230
Apr.	Titania	"	5767-	5706- 220		60-2020
May	Wellington	"	2300-	2202-2160		97- 80
June	"	"	2421-	2376- 970		44-1270
Aug.	"	"	2292-	2225- 450		66-1790
Sept.	"	"	2265-	2259-1690		5- 550
"	"	"	2363-	2311- 100		51-2140
"	Tordenskjold	"	5998-	5786- 570		211-1670
"	Bayard	J. J. M. & Co.	2006-1870	2006-1870		
Oct.	Invertay	H. M. N. & Co.	2502-	2491- 350		10-1890
Nov.	Wellington	W. F. Co.	2307-	2207-1310		99- 930
"	Thiers	H. R. & Co.	3163-	3094-1390		68- 850
"	Tymeric	H. M. N. & Co.	1841-	1814- 450		26-1790
Dec.	Wellington	W. F. Co.	2307-	2235-1860		71- 380
"	Leelanaw	"	2831-	2706-2130		124- 110
"	Kilburn	J. J. M. & Co.	1742- 410	1742- 410		
"	Aagot	"	767-1720	767-1720		
"	A. J. Fuller	H. R. & Co.	2453-	2414- 120		38-2120
"	Inca	"	1632-	1593-1460		38- 780
"	Koko Head	"	1942-	1907-1940		34- 300
"	W. A. Holden	"	1797-	1819-1282	22-1282	
"	Puaka	"	1931-	1857-1860		73- 380
"	Polaris	"	1220-	1220-		
"	David C. Evans	"	1233-	1227-1040		5-1200
"	Kohala	"	1247-	1183-2220		63- 20
"	Amazon	"	1825-	1870-1220	45-1220	
"	Amaranth	J. J. M. & Co.	1729-	1710-1590		18- 650

[1819-1754]

Date of Entry.	Name of Vessel.	Consignees.	Loading Weight.	Custom- house Weight.	Over.	Short.
910.						
an.	Leelanaw	W. F. Co.	2795-	2622- 990		172-1250
	J. C. Meyer	H. R. & Co.	1322- 800	1322- 800		
Feb.	Tricolor	W. F. Co.	6070-	6547-1488		122- 752
"	Leelanaw	"	2850-	2761- 480		88-1760
"	"	"	2850-	2725- 880		124-1360
June	"	"	2823-	2653- 550		169-1690
July	"	"	1866-	1862- 930		3-1310
"	Koko Head	H. R. & Co.	6994-	6786-1345		207- 895
Aug.	Manhattan	W. F. Co.	2869-	2808- 820		60-1420
"	Leelanaw	"	1135-	1154- 844	19- 844	
"	Forest Home	H. R. & Co.	1644-	1617-1815		26- 425
"	John Palmer	"	1851-	1830- 220		20-2020
"	H. K. Hall	"	1825-	1779- 750		45-1490
"	Amazon	"	2181-	2156- 340		24-1900
"	Crescent	"	1793-	1743-1370		49- 870
"	Antiope	"	1793-	1782-1830		10- 410
"	Geo. E. Billings	"	1739-	1716-1800		22- 440
"	Dartford	"	1615-	1631-1080	16-1080	
"	Thos. P. Emigh	"	1204-	1209- 110	5- 110	
"	Polaris	"	2867-	2764-1550		102- 690
Sept.	Leelanaw	W. F. Co.	2849-	2716- 590		132-1650
"	"	"	7389-	7357- 798		31-1442
Oct.	Thor.	"	1493-	1483-1000		9-1240
"	Alpena	H. R. & Co.	5209-	5136-1310		72- 930
Nov.	Greystoke Castle	W. F. Co.	3753-	3703- 450		49-1790
"	Poltalloch	H. R. & Co.	3004-1010	3004-1010		
"	Aagot	J. J. M. & Co.	220-	220-		
"	Solveig	Mitsui	1692-	1682- 70		9-2170
Dec.	James Tuft	H. R. & Co.	5983-	5959- 710		23-1530
"	Harpeake	"				
1911.						
Jan.	Elsa	H. R. & Co.	1848-	1843-1870		4- 370
"	Croyden	J. J. M. & Co.	591-2010	591-2010		
"	Titania	"	2502-1220	2502-1220		
Feb.	Puritan	H. R. & Co.	3467-	3445- 759		21-1481
"	Strathblane	"	5976-	5945-1456		30- 784
"	C. J. Meyer	"	1318-	1330-1892	12-1892	
March	Henley	W. F. Co.	4623-	4673-1360	50-1360	
"	Koko Head	H. R. & Co.	1873-	1801- 924		71-1316
"	Puako	"	1852-	1858-1170	6-1170	
"	Belle of Scotland	"	6661-	6685- 216	24- 216	
"	Inca	"	1601-	1601-1400	-1400	
Apr.	Titania	W. F. Co.	5401-	5326- 379		74-1861
"	Skipton Castle	"	5855-	5834-1470		20- 770
"	W. H. Talbot	H. R. & Co.	1224-	1213-1442		10- 798
"	Lahaina	"	1639-	1622- 974		16-1266
May	Skinton Castle	W. F. Co.	6063-	6095- 630	32- 630	
"	Henley	"	4140	4146- 960	6- 960	
"	Americana	H. R. & Co.	1320-	1324- 526	4- 526	
"	Antiope	"	1723-	1723- 470	- 470	

[1820-1755]

Date of Entry.	Name of Vessel.	Consignees.	Loading Weight.	Custom-house Weight.	Over.	Short.
1911.						
June	Geo. E. Billings	H. R. & Co.	1822-	1816-1579		5- 661
"	Jane L. Stanford	"	1430-	1463- 222	33- 222	
"	James Johnson	"	1647-	1636- 960		10-1280
"	H. K. Hall	"	1787-	1790- 730	3- 730	
July	Damara	"	998-	1007- 790	9- 790	
"	Resolute	"	985-	980-1369		4- 880
"	La Rochejaquelin	"	2908-	2921- 400	13- 400	
"	John Palmer	"	1636-	1645-1100	9-1100	
Aug.	Kohala	"	1257	1266-1700	9-1700	
"	Makaweli	"	1333-	1331- 860		1-1380
"	Mahukona	"	1066-	1061- 552		4-1688
"	Earl of Forfar	J. J. M. & Co.	224-1623	224-1623		
Sept.	W. F. Babcock	H. R. & Co.	2865-	2927-2075	62-2075	
Oct.	Admiral Borreson	W. F. Co.	6110-	6077-1170		32-1070
"	Chancellor	B. G. & Co.	993-1440	993-1440		
Nov.	Poltalloch	H. R. & Co.	3739-	3721- 620		17-1620
"	Puako	"	1900-	1906-2218	6-2218	
"	Queen Elizabeth	J. A. & B.	5871-	5832-2190		38- 50
"	British Yeoman	"	2940-	2875-1980		64- 260
"	Commeree	H. R. & Co.	991-	988-1710		2- 530
Dec.	J. C. Meyer	"	1310-	1309-1950		- 290
"	Henrik Ibsen	J. & A. B.	5833-	5799- 130		33-2110
"	Dunbar	W. F. Co.	5663-	5602-1640		60- 600
1912.						
Jan.	Strathgarry	J. & A. B.	5886-	5851-2040		34- 200
"	Drummuir	"	1013- 90	1013- 90		
"	Thos. P. Emigh	H. R. & Co.	1624-	1625-1440	1-1440	9-1290
"	W. H. Talbot	"	1239-	1229- 950		
"	Lord Templetown	J. & A. B.	3211-	3201-1780		9- 460
Feb.	Lahaina	H. R. & Co.	1661-	1663-2110	2-2110	
"	Jas. Johnson	"	1617-	1642-1080	25-1080	
Mar.	Thor.	W. F. Co.	7165-	7160-1780		4- 460
"	Wellington	"	2257-	2264-1680	7-1680	
"	Antiope	H. R. & Co.	2018-	2015-1570		2- 670
"	Espada	"	1030-	1003-1050		26-1190
Apr.	Americana	"	1273-	1259-2140		13- 100
"	Geo. E. Billings	"	1874-	1842-2210		31- 30
May	E. K. Hall	"	1822-	1826- 780	4- 780	
"	Titania	J. J. M. & Co.	4236-	4172-1940		63- 300
"	Dartford	D. & F. Ltd.	1142- 420	1142- 420		
"	Georgina	J. J. M. & Co.	1387-	1356-1550		30- 690
"	Kohala	H. R. & Co.	1273-	1227- 220		45-2-2-
June	Christian Bors	W. F. Co.	7047	6880-1170		166-1070
"	Dunsyre	J. & A. B.	3490-	3413-1980		76- 260
"	River Forth	J. J. M. & Co.	4675-	4611- 480		63-1760
"	Battle Abbey	H. R. & Co.	2305-	2244-2017		60- 222
July	Mahukona	"	1093-	1077- 514		15-1726

[1821-1756]

Date of Entry.	Name of Vessel.	Consignees.	Loading Weight.	Custom- house Weight.	Over.	Short.
1912.						
Aug.	Ikalis	J. J. M. & Co.	3969-	3981-1135	12-1135	
"	Artemis	J. & A. B.	5467-2100	5467-2100		
"	Wellington	W. F. Co.	2371-	2364-1560		6- 680
"	Damara	"	7980-	7846- 539		133-170
"	Senator	B. G. & Co.	779-1008	757- 110		22- 898
Sept.	Thor	W. F. Co.	7293-	7094-1300		198- 940
"	Hecla	H. R. & Co.	2127	2077- 520		49-1720
"	Koko Head	"	1931-	1902- 610		28-1630
"	Titania	J. J. M. & Co.	4829-	4771-2040		57- 200
"	Lord Curzon	J. & A. B.	2893-1790	2893-1790		
Oct.	Ikala	J. J. M. & Co.	4283-	4203-2230		79- 10
"	Poltalloch	H. R. & Co.	3812-	3723-2140		88- 100
"	Inverie	J. & A. B.	3829- 970	3829- 970		
Nov.	Lord Templetown	H. R. & Co.	3256-	3220-1040		35-1200
"	Magician	B. G. & Co.	524-2090	524-2090		
Dec.	Antiope	H. R. & Co.	2080-	2057-1910		22- 330
"	British Yoeman	"	2910-	2871- 950		38-1290
	Totals		1017395- 645	1006691-1503	2065- 690	12768-207

Net Shortage 10,703-1382 Tons.

Percentage based on loading weights .01052

Consignees:

W. F. Co.	—Western Fuel Company.
J. & A. B.	—J. & A. Brown.
H. R. & Co.	—Hind, Rolph & Company.
J. J. M. & Co.	—J. J. Moore & Company, Inc.
H. M. N. & Co.	—H. M. Newhall & Company.
B. H. Co.	—Barneson-Hibbard Company.
E. C. E.	—E. C. Evants & Sons.
G. W. McN.	—G. W. McNear, Inc.
Mitsui	—Mitsui & Company.
B. G. & Co.	—Balfour, Guthrie & Company.
D. & F. Ltd.	—Davies & Fehon, Ltd.

[1822—1757]

(Testimony of Edward H. Mayer.)

(3) Defendants' Exhibit "NN," being a statement or tabulation showing the duties paid on coal at the earlier rate of duty, 67 cents, and at the later, 45 cents, respectively, by the Western Fuel Company alone, on British Columbia coal and Australian coal and on cargoes of Australian coal and Japanese coal, and showing also the total amount of duty refunded to the Western Fuel Company by the Government out of the amount deposited on the excess cargoes, said table covering the entire period of the indictment in this cause.

Thereupon, after arguments, the Court admitted in evidence said Defendants' Exhibit "NN," and it is in words and figures as follows, to wit: [1823—1758]

[Defendants' Exhibit "NN"—Statement of Duty
Paid and Refunded on Coal.]

STATEMENT OF DUTY PAID AND REFUNDED ON COAL.

Duty paid on

670,553 tons British Columbia coal @ 67¢	\$449,270.51	
624,646 " " " " @ 45¢	281,090.70	\$ 730,361.21
296,442 tons Australian coal @ 67¢	198,616.14	
220,692 " " " " @ 45¢	99,311.40	
40,160-1943 tons " (part cargoes) @ 67¢	26,907.78	
27,087- 858 " " " " @ 45¢	12,189.32	337,024.64
36,191 tons Japanese coal @ 67¢	24,247.97	
64,267 " " " " @ 45¢	28,920.15	53,168.12
Total duty paid on all cargoes		1,120,553.97

Duty refunded on:

8,287-1974 tons B. C. coal @ 67¢	\$5,552.88	
9,770-1703 " " " " @ 45¢	4,396.84	9,949.72
Less duty on excess cargoes:		
2,869- 331 tons @ 67¢	1,922.33	
666-1506 " @ 45¢	300.00	2,222.33
2,272-1792 tons Australian coal @ 67¢	1,522.78	
2,175- 518 @ 45¢	978.85	2,501.63
Less duty on excess cargoes:		
1,069-1592 ton @ 67¢	716.71	
419-1627 " @ 45¢	188.88	905.59
1,260-1527 tons Japanese coal @ 67¢	844.66	
1,557-1379 " " " " @ 45¢	700.93	1,545.59
Less duty on excess cargoes:		
178-1690 tons @ 45¢	80.44	1,465.15
Total duty refunded on all cargoes		10,788.58
Duty paid on entry		\$1,120,553.97
Less duty refunded		10,788.58
Net duty paid		1,109,765.39
[1824—1759]		

(Testimony of Edward H. Mayer.)

Thereupon, the following proceedings ensued :

Mr. KNIGHT.—I will give you merely the results of the tabulation. It is a statement of duty paid and refunded on coal. It shows that the duty paid on British Columbia coal was \$730,361.21. The total duty paid on Australian coal, whole and part cargoes, was \$337,024.64; the duty paid on Japanese coal, both rates, was \$53,168.12; that makes a total duty paid on all cargoes of \$1,120,553.97. The duties refunded on British Columbia coal amount to \$7,727.39; on the excess cargoes of Australian coal, \$1,596.04, and the same with reference to Japanese coal, \$1,465.15, making a total duty refunded on all coal to the Western Fuel Company during the period of the indictment, \$10,788.58.

The duty paid on the entry of merchandise was \$1,120,553.97. The duty refunded was \$10,788.58, showing a net duty paid by the Western Fuel Company during that time of \$1,109,765.39.

Mr. ROCHE.—Mr. Knight, will you let me ask you this question, with your Honor's permission. This table, as I understand it, relates to duties paid upon cargoes consigned, we will say, for instance, to J. J. Moore & Company, Hind, Rolph & Company, and discharged by the Western Fuel Company; is not that correct?

Mr. KNIGHT.—It refers to all the duties which were paid by the Western Fuel Company and which the Western Fuel Company entered.

Mr. ROCHE.—That is what I am trying to get at. For instance, the first table you introduced here a

(Testimony of Edward H. Mayer.)

short while ago disclosed the number of cargoes consigned we will say to Hind, Rolph & Company and discharged by the Western Fuel Company; now, of course, upon those cargoes duties were paid. Does this table include the duties paid upon cargoes consigned to some company other than the Western [1825—1760] Fuel Company and afterwards sold to the Western Fuel Company or discharged by that company? In those instances the duty would be paid by the consignee and the vessel entered by the consignee.

Mr. KNIGHT.—I understand that the consignee paid the duty and that then the Western Fuel Company paid that company.

Mr. ROCHE.—That is correct, and that is why I asked you the question I asked you first, if those were embraced within the last statements.

Mr. OLNEY.—We will give you a positive answer on that in just a second. In reply to your question, Mr. Roche, I would say that this table is the total of duties paid, together with any refund in case of shortage on all cargoes discharged by the Western Fuel Company.

Mr. ROCHE.—All right. Then, of course, Mr. Knight, you will admit in connection with this table, that it does contain a number of cargoes upon which duty was paid by the consignee?

Mr. OLNEY.—It does.

Mr. ROCHE.—And not paid by the Western Fuel Company in those instances?

Mr. OLNEY.—Exactly.

(Testimony of Edward H. Mayer.)

(4) Defendants' Exhibit "OO," being a table of British Columbia cargoes imported into San Francisco by the Western Fuel Company from the month of April, 1906, to the month of May, 1913, inclusive, said table showing in columns, date, name of vessel, bill of lading weight, custom-house weight, and the overage or shortage, as the case might be, for each cargo.

Said Defendants' Exhibit "OO" is in words and figures as follows, to wit: [1826—1761]

**[Defendants' Exhibit "OO" — British Columbia
Cargoes Imported by Western Fuel Company.]**

British Columbia Cargoes Imported by Western Fuel Company.

Date. 1906.	Name of Vessel.	B/L Weight.	C. H.	Weight	Over	Short
April	Blackheath	4,033	4,010-1890			22- 350
"	Reidar	5,712	5,715-1130	3-1130		
"	"	5,801	5,811- 210	10- 210		
"	Terje Viken	5,835	5,874-1385	39-1385		
"	Titania	5,708	5,698-2120			9- 120
"	"	5,588	5,748- 880	160- 880		
"	Terje Viken	5,710	5,544-1080			165-1160
"	Wellington	2,210	2,268-2160	58-2160		
"	Tellus	2,605	2,994- 760	389- 760		
May	Wellington	2,265	2,248- 220			16-2020
"	Titania	5,700	5,747- 808	47- 808		
"	"	5,760	5,718-1480			41- 760
"	Terje Viken	5,774	5,689- 840			84-1400
"	Tellus	3,586	3,687-1590	99-1590		
June	Terje Viken	5,796	5,770- 30			25-2210
"	Titania	5,790	5,766- 60			23-2180
"	Wellington	2,253	2,276-1660	23-1660		
July	"	2,270	2,284- 860	14- 860		
"	Titania	5,655	5,554- 880			100-1360
"	Terje Viken	5,700	5,515- 790			184-1450
"	"	5,743	5,603-1730			139- 510
"	Titania	5,694	5,680- 470			13-1770
Aug.	Terje Viken	5,685	5,572-1380			112- 860
"	Titania	5,812	5,702-2012			109- 228
Sept.	Terje Viken	5,808	5,758- 950			49-1290
"	Titania	5,747	5,678-1100			68-1140
"	Terje Viken	5,861	5,619-1200			241-1040
Oct.	Blackheath	3,665	3,628-1980			36- 260
"	"	3,506	3,499- 760			6-1480
"	Tellus	3,818	3,642-1740			175- 500
"	Terje Viken	5,853	5,809- 740			43-1500
"	Tordenskjold	5,910	5,727- 430			182-1810
Nov.	Tellus	3,860	3,785-1790			74- 450
"	Titania	5,705	5,665-2220			39- 20
"	Tordenskjold	5,782	5,693- 560			88-1680
"	Tellus	3,727	3,645- 600			81-1640

Date.	Name of Vessel.	B/L Weight.	C. H.	Weight	Over	Short
Dec.	Hercules	6,396	6,243-	386		152-1854
"	Sheila	6,061	5,939-	210		121-2030
"	Titania	5,665	5,670-	1360		44- 880
"	Tordenskjold	5,770	5,803-	1270	33-	1270
"	Tellus	3,554	3,638-	654	84-	654
"	Titania	5,456	5,408-	2170		47- 70
1907.						
Jany.	Sheila	5,591	5,471-	1430		119- 810
"	Tellus	3,752	3,644-	2220		107- 20
"	Titania	5,542	5,440-	1110		101-1130
"	Wellington	2,312	2,237-	1140		74-1100
Feb.	Condor	4,234	4,235-	1820	1-	1820
"	Sheila	5,714	5,653-	2160		60- 80
"	Tellus	3,531	3,578-	1220	47-	1220
"	Tordenskjold	5,907	5,630-	400		276-1840
"	Tellus	3,528	3,487-	1970		40- 270
March	Sheila	5,760	5,621-	930		138-1310
"	Tordenskjold	5,678	5,744-	260	66-	260
"	Tellus	3,529	3,494-	1880		34- 360
"	Wellington	2,313	2,265-	1670		47- 570
April	Titania	5,621	5,597-	2220		23- 20
"	Tellus	3,689	3,623-	680		65-1560
"	Tordenskjold	5,869	5,570-	650		298-1590
"	Wellington	2,318	2,293-	1500		24- 740
"	"	2,358	2,286-	560		71-1680
May	Hornelen	5,027	5,002-	850		24-1390
"	Titania	5,748	5,757-	320	9-	320
"	Tellus	3,621	3,576-	1030		44-1210
	Forward	300,473	297,507-	885	1089-	1307 4,055- 422
[1827-1762]						
	Forward	300,473	297,507-	885	1,089-	1307 4,055- 422
1907.						
May	Tordenskjold	5,723	5,634-	1270		88- 970
June	Hornelen	5,975	5,979-	1780	4-	1780
"	Tordenskjold	5,603	5,602-	1760		- 480
July	Hornelen	5,948	6,051-	150	103-	150
"	Tordenskjold	5,786	5,761-	1000		24-1240
"	Tellus	3,630	3,541-	160		88-2080
Aug.	"	3,551	3,521-	2040		29- 200
"	Tordenskjold	5,794	5,719-	500		74-1740
Sept.	Hornelen	6,057	6,228-	227	171-	227

Date.	Name of Vessel.	B /L Weight.	C. H. Weight	Over	Short
Sept.	Tellus	3,547	3,542-1100		4-1140
"	Wellington	2,310	2,247-1390		62- 850
"	"	2,282	2,282-1650	-1650	
Oct.	Hornelen	5,696	5,742-1760	46-1760	
"	"	6,213	6,278- 670	65- 670	
"	Tordenskjold	5,758	5,775- 330	17- 330	
Nov.	Hornelen	6,165	6,260- 950	95- 950	
"	Tordenskjold	5,853	5,818- 370		34-1870
"	Wellington	2,275	2,272-2230		2- 10
Dec.	Hornelen	6,237	6,111-2060		125- 180
"	Titania	5,787	5,691-2010		95- 230
"	Wellington	2,269	2,232-1160		36-1080
"	Tordenskjold	5,965	5,653- 710		311-1530
1908.					
Jany.	Hornelen	6,425	6,089-2089		335- 151
Feby.	Titania	5,705	5,664-1280		40- 960
March	Hornelen	6,244	6,074-2000		169- 240
"	Tordenskjold	5,820	5,600- 730		219-1510
"	Thor	7,230	7,141-1420		88- 820
April	Titania	5,702	5,745-1060	43-1060	
"	Tordenskjold	5,960	5,846- 980		113-1260
May	Thor	7,405	7,335-1500		69- 740
June	Titania	5,899	5,805-1910		93- 330
"	Tordenskjold	5,940	5,841-1170		98-1070
July	Titania	5,847	5,722- 640		124-1600
"	Thor	7,287	7,134-1270		152- 970
Aug.	Tordenskjold	5,980	5,758-1440		221- 800
"	Titania	5,840	5,737- 420		102-1820
"	Tordenskjold	5,892	5,738-1610		153- 630
Sept.	Titania	5,704	5,616- 600		87-1640
Oct.	Tordenskjold	5,647	5,749- 560	102- 560	
"	Thor	7,435	7,290- 460		144-1780
"	Titania	5,696	5,725- 890	29- 890	
Nov.	Tordenskjold	5,927	5,813- 490		113-1750
"	Titania	5,850	5,791- 440		58-1800
"	Wellington	2,348	2,281-1950		66- 290
"	Thor	7,063	7,241-1580	178-1580	
Dec.	Tordenskjold	5,773	5,706-1040		66-1200
"	Titania	5,765	5,776- 757	11- 757	
"	Wellington	2,264	2,226-1250		37- 990
"	"	2,272	2,228- 280		43-1960

Date.	Name of Vessel.	B/L Weight.	C. H.	Weight	Over	Short
1909.						
Jany.	Thor	7,211	7,110-1439		100-	801
Feb'y.	Wellington	2,367	2,296-2180		70-	60
"	"	2,260	2,203-1230		56-	1010
"	Titania	5,687	5,692-1040	5-1040		
"	Thor	7,093	7,158-1440	65-1440		
"	Tordenskjold	6,000	5,920- 10		79-	2230
March	Titania	5,673	5,684-1250	11-1250		
"	Wellington	2,284	2,348- 800	64- 800		
"	Thor	7,088	7,244-1690	156-1690		
April	Titania	5,767	5,706- 220		60-	2020
"	Thor	7,112	7,297-1680	185-1680		
	Forward	622,359	616,805-1757	2448-1411	8,001-	1894

[1828-1763]

	Forward	622,359	616,805-1757	2448-1411	8,001-	1894
1909.						
April	Titania	5,710	5,775-1250	65-1250		
May	Thor	7,200	7,323-2120	123-2120		
"	Wellington	2,300	2,202-2160		97-	80
"	Thor	7,112	7,291- 630	179- 630		
June	Titania	5,819	5,810-1250		8-	990
"	Wellington	2,305	2,342-2000	37-2000		
"	"	2,421	2,376- 970		44-	1270
July	Thor	7,165	7,171- 460	6- 460		
"	Titania	5,840	5,704- 20		135-	2220
"	Wellington	2,322	2,329-1420	7-1420		
Aug.	Thor	7,318	7,273- 820		44-	1420
"	Titania	5,901	5,725-1680		175-	560
"	Wellington	2,265	2,259-1690		5-	550
"	"	2,292	2,225- 350		66-	1890
Sept.	"	2,339	2,311- 100		27-	2140
"	Tordenskjold	5,998	5,786- 570		211-	1670
"	Titania	5,784	5,808-1450	24-1450		
Oct.	Wellington	2,313	2,301-1800		11-	440
"	Thor	7,325	7,289- 470		35-	1770
"	Wellington	2,329	2,320-1330		8-	910
Nov.	Leelanaw	2,798	2,611-1530		186-	710
"	Thor	7,218	7,135- 630		82-	1610
"	Wellington	2,307	2,207-1310		99-	930

Date.	Name of Vessel.	B/L Weight.	C. H.	Weight	Over	Short
Dec.	Thor	7,314	7,169-1030			144-1210
"	Leelanaw	2,831	2,706-2130			124- 110
"	Wellington	2,307	2,235-1860			71- 380
1910.						
Jany.	Leelanaw	2,795	2,622- 990			172-1250
Feb.	"	2,850	2,761- 480			88-1760
"	Thor	7,217	7,157-1750			59- 490
"	"	7,145	7,128-1875			16- 365
"	Tricolor	6,670	6,547- 752			122-1488
March	Leelanaw	2,745	2,707-1380			37- 860
"	Thor	7,228	7,242-1110	14-1110		
"	Thode Fagelund	6,698	6,514- 740			183-1500
May	Leelanaw	2,765	2,742- 230			22-2010
"	Thor	7,293	7,224-2120			68- 120
June	Leelanaw	2,850	2,725- 880			124-1360
"	"	2,823	2,653- 550			169-1690
"	Thor	7,348	7,204-1910			143- 330
July	Jethou	6,871	6,715-1291			155- 949
"	Leelanaw	2,869	2,808- 820			60-1420
"	Thor	7,359	7,242-1610			116- 630
Aug.	Leelanaw	2,796	2,742- 520			53-1720
"	Manhattan	6,994	6,786-1345			207- 895
"	Thor	7,384	7,260-1710			123- 530
Sept.	Leelanaw	2,867	2,764-1550			102- 690
"	"	2,849	2,716- 590			132-1650
"	St. Nicholas	4,107	4,058-1480			48- 760
"	Thor	7,203	7,275- 940	72- 940		
Oct.	Falls of Orchy	6,839	6,686-1810			152- 430
"	Leelanaw	2,759	2,681-1050			77-1190
"	Thor	7,389	7,357- 798			31-1442
Nov.	Greystoke Castle	5,209	5,135-1310			72- 930
"	Leelanaw	2,798	2,854- 470	56- 470		
"	"	2,790	2,817- 990	27- 990		
Dec.	Cuzco	5,825	5,682-1860			142- 380
"	Thor	7,145	7,115-1700			29- 540
1911.						
Jany.	M. S. Dollar	5,976	6,011-1796	35-1796		
"	Thor	7,243	7,190-1140			52-1100
Feby.	"	7,193	7,200- 930	7- 930		
Forward		918,084	908,841-1584	3,107-1297	12,349-1953	

Date.	Name of Forward	B / L		C. H.	Weight	Over	Short
		Vessel.	Weight.				
			918,084	908,841-1584	3,107-1297	12,349-1953	
1911.							
Feby.	Tordenskjold		5,729	5,475-1829			253- 411
March	Henley		4,623	4,673-1360	50-1360		
"	St. Ronald		5,709	5,418-1970			290- 270
"	Thor		7,193	7,056-1010			136-1230
"	Titania		5,401	5,326- 379			74-1861
April	Henley		4,958	4,824- 650			133-1590
"	Skipton Castle		5,855	5,834-1470			20- 770
"	"		6,063	6,095- 630	32- 630		
"	Titania		5,575	5,466- 460			108-1780
May	Henley		4,140	4,146- 960	6- 960		
"	Thor		7,307	7,309-1670	2-1670		
"	"		7,312	7,215- 620			96-1620
June	St. George		1,441	1,451- 790	10- 790		
"	Lonsdale		2,610	2,575-1510			34- 730
"	Thor		7,362	7,279-2150			82- 90
"	"		7,360	7,222- 840			137-1400
July	Boverie		6,534	6,423- 50			110-2190
"	Coulsdon		6,598	6,413-1330			184- 910
Aug.	Candidate		3,067	2,932-2230			134- 10
"	Damara		7,514	7,525-1110	11-1110		
"	Tricolor		4,415	4,284-1130			130-1110
Sept.	Senator		5,098	5,021-2000			76- 240
"	Thor		7,342	7,323-1010			18-1230
Oct.	Admiral Borreson		6,110	6,077-1170			32-1070
"	Belle of Scotland		1,506	1,453- 350			52-1890
"	Bannockburn		7,445	7,365-2170			79- 70
"	Thor		7,376	7,249- 780			126-1460
Nov.	"		7,218	7,271-1410	53-1410		
Dec.	Dunbar		5,663	5,602-1640			60- 600
"	Mathilda		6,333	6,229- 630			103-1610
1912.							
Jany.	Thor		7,216	7,210-1760			5- 480
"	"		7,477	7,100-1140			376-1100
Feby.	"		7,093	7,029- 790			63-1450
"	Wellington		2,507	2,305- 450			201-1790
"	"		2,353	2,171- 440			181-1800
March	Ikalis		6,500	6,291- 810			208-1430
"	Thor		7,097	7,106-1600	9-1600		
"	"		7,165	7,160-1780			4- 460

		B /L					
Date.	Name of Vessel.	Weight.	C. H.	Weight	Over	Short	
March	Wellington	2,257	2,294-1684	37-1680			
"	"	2,295	2,313- 490	18- 490			
April	Ikala	6,569	6,549- 320			19-1920	
"	Thor	7,162	7,105-1660			56- 580	
"	Wellington	2,243	2,244-1780	1-1780			
"	"	2,331	2,329- 990			1-1250	
May	"	2,359	2,326-1970			32- 270	
"	"	2,434	2,329-1720			104- 520	
June	Christian Bors	6,556	6,460-1320			95- 920	
"	" "	7,047	6,880-1170			166-1070	
"	Wellington	2,345	2,310-2150			34- 90	
"	"	2,415	2,306-1270			108- 970	
July	Thor	7,180	7,107- 710			72-1530	
"	Wellington	2,371	2,348-2150			22- 90	
"	"	2,415	2,348-2090			66- 150	
"	"	2,372	2,342- 470			29-1770	
Aug.	Damara	7,980	7,845- 539			133-1701	
"	Gifford	6,846	6,809-1540			36- 700	
"	Solveig	6,898	6,869- 382			28-1858	
"	Wellington	2,371	2,364-1560			6- 680	
"	"	2,355	2,360- 210	5- 210			
Sept.	Ikalis	6,430	6,197- 130			232-2110	
"	Thor	7,293	7,094-1300			198- 940	
Forward		1,236,873	1,222,905-1583	3,347-1547	17,314-2204		

[1830—1765].

Forward		1,236,873	1,222,905-1583	3,347-1547	17,314-2204		
1912.							
Sept.	Wellington	2,304	2,317-1240	13-1240			
Oct.	"	2,227	2,297-1210	70-1210			
"	"	2,246	2,264-1530	18-1530			
Nov.	Queen Elizabeth	6,767	6,718- 642			48-1598	
"	Wellington	2,248	2,246-1850			1- 390	
Dec.	"	2,228	2,252-1560	24-1560			
"	"	2,228	2,235-1900	7-1900			
1913.							
Jany.	Leona	761	716- 850			44-1390	
"	Wellington	2,233	2,181-1350			51- 890	
"	"	2,228	2,265- 130	37- 130			

(Testimony of W. H. Tidwell.)

		B /L					
Date.	Name of	Vessel.	Weight.	C. H.	Weight	Over	Short
Feby.	Wellington		2,263	2,271-	110	8- 110	
"	"		2,263	2,270-	1570	7-1570	
March	Tampico		2,760	2,671-	400		88-1840
"	Wellington		2,306	2,279-	1390		26- 850
"	"		2,286	2,280-	1700		5- 540
"	"		2,346	2,311-	1150		34-1090
April	Tampico		2,676	2,669-	1230		6-1010
"	Tricolor		6,376	6,243-	360		132-1880
"	Wellington		2,366	2,347-	2170		18- 70
"	"		2,366	2,332-	110		33-2130
May	Tricolor		2,423	2,250-	685		172-1555
"	Wellington		2,425	2,346-	320		78-1920
Totals			1,295,199	1,280,676-	400	3,535-1837	18,058-1437
		Net Shortage 14,522-1840 tons					
		Percentage .0112					

[1831—1766]

Counsel explained to the jury that this exhibit showed a total bill of lading weight of 1,295,199 tons, and a total custom-house weight of 1,280,676 tons and 400 pounds, and an overage of 3,500 odd tons, a shortage of 18,000 odd tons or a net shortage of 14,522 tons, 1840 pounds, being a percentage of shortage for the period of .0112.

**[Testimony of W. H. Tidwell, for Defendants
(Recalled—Cross-examination).]**

W. H. TIDWELL, recalled by the defendants for further cross-examination, testified as follows:

Cross-examination by Mr. STANLEY MOORE.

I detailed other agents besides Mr. Enlow, Mr. John W. Smith, and Mr. David G. Powers to observe the operations of the Western Fuel Company between August, 1912, and February 1, 1913. One was an assistant weigher by the name of Hassler. Also, the inspectors generally on the waterfront had in-

(Testimony of W. H. Tidwell.)

structions to look out for matters in connection with the weighing of coal, but I cannot say just exactly when I gave them these instructions. Mr. Hassler's detail commenced I think about the 20th of October and ran to about the first of November. To the best of my remembrance, but I cannot recall certainly, I gave Mr. Enlow and Mr. Smith their instructions in August or September. At the beginning, however, their instructions were to look out particularly for certain opium matters, and incidentally to observe the operations of the Western Fuel Company. [1832—1767] The instructions were first given either in August or September to the best of my remembrance. I do not recall any specific instructions to the inspectors. But I do remember a conversation with former collector Stratton, or with special deputy surveyor Stephens, in which I requested the inspectors generally to look out all along the waterfront for the weighing of coal. I do not know the date of that request. It was after August or September, however. I cannot name any particular inspector to whom these instructions were given during the year 1912, other than Smith, Enlow and Powers. We had, of course, at that time 160 inspectors, I think. I might possibly have spoken personally to a number of them, but I do not recall a particular instance.

When I first made a request to the collector to detail, a man by the name of Murray was detailed on this work, but he stated that he did not care to serve,

(Testimony of W. H. Tidwell.)

so he was relieved and Mr. Hassler was later detailed inside. Aside from those two gentlemen, I do not remember any other man who was engaged in that investigation, to my knowledge, from August, 1912, to February, 1913. Apart altogether from my ability at the present time to remember names I do not think that additional men were detailed at all. I do not recall conversing with David G. Powers especially concerning a sugar case, but I do recall talking with him concerning a reward.

Redirect Examination by Mr. ROCHE.

There was no inspector specially detailed, as I recall it, for these investigations other than those who have been mentioned. To my best recollection, I spoke to Collector Stratton concerning the matter, some time in the month of October, or the latter part of September, that is as near as I can fix the date.

Recross-examination by Mr. STANLEY MOORE.

I do not recall any inspector who was specially detailed, [1833—1768] other than Enlow, Smith and Powers. They were at that time in my office and were not inspectors on the front under the detail of the collector of customs. There was also another man, Joseph Head, in my office at that time. He was assigned there in connection with opium matters. Neither he nor anyone else was assigned to my office in connection with the Western Fuel Company. I think that Head also had general instructions, which would include the Western Fuel Com-

(Testimony of W. H. Tidwell.)

pany matter. These general instructions were to look after the weighing of coal and report anything of a nature that might be of interest to the Government. I cannot say when these instructions were given to Mr. Head, but it was at about the same time as the other men were assigned. He went out on opium matters, but I do not recall whether he actually went out on the Western Fuel matters during this period—August, 1912, to February, 1913. I do not remember his having made any reports on Western Fuel matters.

BE IT REMEMBERED that, thereupon, the following testimony was given and that the following proceedings occurred:

Mr. STANLEY MOORE.—There is one other matter we would ask permission to examine the witness upon cross-examination; it is on another subject.

Q. I want to ask you this question, Mr. Tidwell: Have you referred the question of the increase in the weight of coal due to moisture to the United States Bureau of Mines?

Mr. ROCHE.—Just a minute. That is objected to upon the ground that it is not proper cross-examination and as immaterial. [1834—1769]

The COURT.—The objection is sustained.

Mr. STANLEY MOORE.—We take an exception.

(Testimony of W. H. Tidwell.)

W. H. TIDWELL, a witness called for the defendants, having been previously sworn, testified as follows:

Direct Examination by Mr. STANLEY MOORE.

I had, I think, more than one talk with Dave Powers, regarding the reward.

Q. I will ask you this question: Is it not a fact that you did state to Mr. David G. Powers on more than one occasion that a discharged checker working for the sugar company on the docks in New York, had carried information to the special agent of the Government there with respect to the manipulation of the scales and that as a result of that information the dock superintendent of the company and a number of employees were convicted, and that thereafter a suit was threatened by the Government in twice the value of that amount of the sugar as to which it was claimed there was a fraudulent evasion of the duty, and that that suit or threatened suit was compromised by the sugar company or companies by the payment of \$2,000,000, and that of that \$2,000,000 the discharged checker, or the discharged checker and the special agent in charge, the law reading differently then than it does now, received the sum of \$100,000, in the year 1910?

A. I recall having no such conversation with Mr. Powers.

* * * * *

Mr. STANLEY MOORE.—Q. Did you tell David G. Powers, or did you not tell David G. Powers that a man back in [1835—1770] New York had re-

(Testimony of W. H. Tidwell.)

ceived a very large amount of money from the Government by reason of information furnished in a sugar case back there?

A. I do not remember ever discussing the sugar case with Mr. Powers, but as previously stated, Mr. Moore, I do recall discussing the matter of reward with him.

Q. Now, I would like to ask this question: Is it not a fact, Mr. Tidwell, that at the first interview with Mr. Powers you told him that under the statute of the United States you would be able on recommendation, or that the Government would be able, by reason of that statute to pay him a reward, or a proportion of the fines or penalties that might be imposed?

A. As I recall it, the matter was discussed between us on the first meeting, but it was a question of moneys recovered on account of the information furnished and not of any fines which may be assessed. I think the law is that up to 35 per cent of the amounts recovered, less the expenses, and so forth.

Q. What per cent, if any, was mentioned as between you and him?

A. In fact, I think I permitted him to read the law.

Q. You showed him the statute? A. I think so.

Q. And what is that statute?

* * * * * * * * *

A. As I previously stated, that an informer could receive up to as high as 35 per cent, within the discretion of the secretary of the treasury, of any amounts recovered, less expenses, and so forth.

(Testimony of W. H. Tidwell.)

Mr. STANLEY MOORE.—Q. Is it your recollection that [1836—1771] you exhibited that statute to him also at the first interview that was held between you?

A. I would not say it was the first one, but I exhibited the statute to him.

Q. As I understand you, Mr. Tidwell, that was with respect to a civil suit, was it not?

A. Yes, sir.

BE IT REMEMBERED that, thereupon, the following testimony was given and that the following proceedings occurred:

Mr. STANLEY MOORE.—Q. Mr. Tidwell, did you ever have any further conversation with Mr. Powers in which you stated to him that this proportion of the reward would come out of a civil suit to follow after the trial of the criminal suit?

A. I do not recall any such conversation as that.

Q. When did you tell Mr. Powers that he might expect to receive the reward?

A. I don't know that I ever told him, for the reason that I haven't the authority to grant the reward.

Q. You say you have not the authority to grant the reward? A. No, sir.

Q. Have you had any correspondence with respect to the matter of reward?

The COURT.—This is not impeaching, Mr. Moore; this is not anything except fishing.

Mr. STANLEY MOORE.—Well, your Honor, even so I think we are entitled to know that.

The COURT.—I don't think so. If you put a

(Testimony of W. H. Tidwell.)

witness on the stand you are presumed to know what he is going [1837—1772] to testify to.

Mr. STANLEY MOORE.—Your Honor, that is a violent assumption in the case of Mr. Tidwell.

The COURT.—Then it is your mistake in putting him on the stand.

Mr. STANLEY MOORE.—Your Honor, it did occur to me to go and ask Mr. Tidwell about these things, but I thought it would be a delicate matter for me to do so, and I refrained from doing so on that account.

The COURT.—I have given you latitude enough in this matter.

Mr. STANLEY MOORE.—Very well, your Honor.

Q. Do you recall when it was you next talked with Mr. Powers about this matter?

Mr. ROCHE.—That is objected to as immaterial.

The COURT.—The objection is sustained.

Mr. STANLEY MOORE.—We note an exception. That is all.

Cross-examination by Mr. ROCHE.

Mr. ROCHE.—Q. Let me ask you this one question on cross-examination: Before anything was said by you or by Powers or by anyone else to Powers, or in Powers' presence about a reward of any kind, or any compensation that was to be paid to him, or that might be expected by him, did Mr. Powers make a statement to you of the facts which he claimed to have within his knowledge concerning these fraudu-

(Testimony of W. H. Tidwell.)

lent transactions on the part of the Western Fuel Company.

A. He did. That is a general statement.

* * * * *

[1838—1773]

Q. And was that general statement made by him to you before any conversation of any kind passed between you and Mr. Powers regarding reward or compensation?

A. I think this conversation passed between Mr. Powers and myself the first time that I ever met him.

The COURT.—Q. Which conversation do you speak about now?

A. The one when he gave me a general outline of the frauds in connection with the Western Fuel Company.

Mr. ROCHE.—Q. That is, he gave you a general outline of these frauds committed, or which he claimed had been committed by the Western Fuel Company, in the first conversation you had with him; is that correct? A. Yes, sir.

Q. Now, what I am trying to get at, however, is this, Mr. Tidwell, whether this question of reward was discussed to any extent during that first conversation, or not? Are you satisfied that this statement regarding the fraudulent transactions claimed by Powers to have been committed by the Western Fuel Company were by him disclosed to you before the question of reward was discussed?

A. To my best remembrance I should say yes.

(Testimony of W. H. Tidwell.)

Redirect Examination by Mr. STANLEY MOORE.

No one was present at the time except Mr. Powers and myself. No one came with Mr. Powers on his first visit to my office, nor do I recall anyone coming with Mr. Powers on his second visit. A word or message preceded his coming, however. I expected him. [1839—1774]

Recross-examination by Mr. ROCHE.

Q. Did you, during the course of that conversation, or during the course of any conversation you ever had with David Powers, either in your office or at any other time, or under any circumstances, suggest to Mr. Powers that he ought to state a single fact which was not strictly in accord with the truth?

A. I never have; in fact, on the contrary, I have always told him to state the absolute truth, that it was all the Government wanted in any instance.

[Testimony of Warren Olney, Jr., for Defendants.]

WARREN OLNEY, Jr., a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. KNIGHT.

I am one of the counsel for the defendants in this case. I recall the occasion of a conversation which I and others had in my office in the latter part of 1913 with Mr. Edward Powers, at which time there were present Mr. McCutchen, Mr. Powers, Mr. Moore, Mr. Norcross and myself.

Q. I will ask you if this conversation occurred, in substance or effect, at that time; whether or not, if

(Testimony of Warren Olney, Jr.)

Mr. Powers was not told, "Mr. Powers, we want to know what the truth is about this matter"—that is, referring to the Western Fuel matter—"Is there anything wrong or was there anything wrong down there in connection with the loading of the vessels, or is there anything that you know about down there on the waterfront," and did not he say at that time, "Yes, there was something wrong," and was he not then asked what it was [1840—1775] that was wrong, and did he not reply to you that the thing that was wrong was that the buckets were heavier loaded when they were weighed than when they were not weighed; and was he not asked in response to that statement which he had made how that came about, how it was done, and was he not asked for an explanation of that circumstance, and did he not say, among other things, that primarily the explanation was that the buckets when they were not being weighed came up at less than one a minute, and that when they were weighed it would take 3 or 4 minutes to weigh one of them and that the men in the hold were being constantly driven all the time to meet the hook, as the expression was then used; and did he not further say at that time that it was all that the men in the hold could do to load the buckets when they were coming up as fast as that in order to meet the hook; did he not further say that when the weighing took place they had more time in which to load the buckets, and they were consequently made heavier for that reason; and was Mr. Powers not asked at that time whether or not this loading of the

(Testimony of Warren Olney, Jr.)

buckets that were to be weighed was done intentionally, that is, that the overloading was done intentionally, and did Mr. Powers not say at that time, "No, it was not done intentionally, it was simply an incident of the business"; and was Mr. Powers not questioned further at that interview whether or not any instructions had been given to his knowledge, or whether there was any understanding that the buckets which were to be weighed were to be filled more full than the other buckets, and did he not say that there were no such instructions and that there was no such [1841—1776] understanding; and did he not also in response to that question say that it was simply the human element of these men trying to meet the hook; and was Mr. Powers not * * * asked whether there was anything fraudulent or wrong about it, and did he not say no, it was simply the human element; and was not Mr. Powers further asked at that time, Was there anything else wrong down there as far as he knew, or that he saw, and didn't he say no there was nothing else wrong; and was he not then asked, Were any instructions issued, or was he not asked particularly with reference to any instructions issued by Mr. Mills, or anyone else, or any understanding whatsoever in regard to the matter, or in regard to anything wrong down there, and didn't he say no; and wasn't he further asked to state everything that had occurred down there in your office, or to state that that interview had occurred, and to say what it was?

(Testimony of Warren Olney, Jr.)

A. That is correct, as you have given it there.

* * * * *

Mr. KNIGHT.—Q. Was that, in substance or in effect, the conversation that occurred at that time, and on that occasion?

A. That is not all of the conversation but that portion of it is almost literally correct.

Cross-examination by Mr. SULLIVAN.

This conversation occurred some little time before the trial of this case commenced. Mr. Edward Powers had already testified before the Grand Jury. That is, he told us that he had. We did not question him as to what he testified to before the Grand Jury. The statements made by him in this conference were not taken down by a stenographer. I am testifying to what I remember, without reference to [1842—1777] written statement, there being none such made then or subsequently. Mr. Norcross brought Mr. Powers to my office.

I had talked previously to Mr. Norcross about the proposed conference. I knew at the time that Mr. Powers was at the time in attendance before the Grand Jury, that is, that he was working under a subpoena. I don't remember whether or not I knew that he had actually testified before the Grand Jury. Mr. J. B. Smith was not present at this conference.

[Testimony of Arthur O'Leary, for Defendants.]

ARTHUR O'LEARY, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. STANLEY MOORE.

I reside in San Francisco. All told I have worked on and off in this harbor in the trimming of coal on steamers for about 17 or 18 years. I was employed 6 or 7 years as foreman trimmer by the Pacific Mail Steamship Company. Then I was off the coal for two years, and I am now and have been for about two years foreman trimmer for the Western Fuel Company under Mr. Mullen.

With reference to the coaling of the Pacific Mail boats, I would say that it is our practice to wet down the coal in the barges when it is dry and dusty. We use an ordinary fire hose for that purpose. Sometimes we wet the coal down twice or three or four times a day, according to its condition. The reason for this wetting of coal is that there is very little ventilation in the coal bunkers, [1843—1778] and we have to keep the dust from flying. Sometimes when we wet down the coal so much that it comes out on the skin of the barges the men working in the holds of the barges complain. This wetting down of coal has been the custom and practice as far back as I can remember in the trimming of the Pacific Mail liners.

Cross-examination by Mr. SULLIVAN.

My duties during the last two years have been exclusively performed in the bunkers of steamers. I

(Testimony of Arthur O'Leary.)

have been trimming for the Western Fuel Company. Before that I worked two years on the city front as a longshoreman and prior to that again I was foreman trimmer for the Pacific Mail S. S. Company for, as I have said, 6 or 7 years. We wet the coal to keep the dust down. That is not done every time the liners are coaled. It is mostly done in the summer-time when the coal is dry. I would not, however, say that in the summer-time there is **never any evidence of** moisture at all in the coal. It depends more or less on what kind of coal we are using. The Wellington or Nanaimo coal is dusty. Comax coal is very dry. Still we sometimes find that the Nanaimo coal is not very dry in the summer. The coal-dust flies all over in the summer-time. Sometimes I use the fire hose in playing water on the coal and sometimes I send a couple of men to do it. I last played the hose on the coal the past summer. I could not swear to the exact month. Nobody gave me instructions to play this water on the coal while I was working for the Western Fuel Company,—I simply followed what had theretofore been the custom. I have said we would sometimes wet the coal three or four times a day, and for periods from a quarter to half an hour. [1844—1779]

(At this point counsel for the prosecution agreed to accept in lieu of proof of the figures a statement of Mr. Norcross to the effect that the net price paid in bond at San Diego to the Western Fuel Company for coal delivered to the Spreckels Bros. Commercial Company there was \$5.84 per ton. This figure would

(Testimony of Arthur O'Leary.)

have relation to the coal delivered in United States Exhibit 125, Table A. It was also admitted by counsel for the defendants, subject to correction, if the facts were proved to be otherwise, that the coal in those cargoes delivered in San Diego was paid for on the out-turn or custom-house weight.)

**[Testimony of John Galloway, for the Government
(Recalled—Cross-examination).]**

JOHN GALLOWAY, a witness recalled by the United States for further cross-examination, testified as follows:

Examination by Mr. SULLIVAN.

I was acquainted with Mr. J. B. Smith's father, Officer Jim Smith, when he was on the police force. I knew him before he was on the force, and I also was acquainted with Mr. J. B. Smith's brother when he was on the force, and I am acquainted with Mr. Ed Smith. In fact I am friendly with all of them. I have known the boys since they were babies. In answer to the question whether I was very intimate or friendly with these gentlemen, I would say that I knew them as I would know any other officer on the force—just to say "How do you do" when we would pass. Sometimes I saw Mr. Ed Smith every day for a while on the waterfront and then again I would not see him for weeks.

[Testimony of Warren Olney, Jr., for the
Government (Recalled—Cross-examination).]

WARREN OLNEY, Jr., recalled by the United States for further cross-examination, testified as follows:

Examination by Mr. SULLIVAN.

[1845—1780]

Q. Mr. Olney, during this conversation in your office with Mr. Ed Powers, did you put to Mr. Ed Powers this question: "Was there anything wrong on the barges?" And did Mr. Ed Powers make response as follows: "Do you want me to tell the truth?"

A. Yes. I would say that what took place was this, we asked him if there was anything wrong down there; my recollection is we did not speak of the barges in that question, and he asked if we wanted him to tell the truth, and we told him we did.

Q. That is, he said, "Do you want me to tell the truth?" and you said "Yes." And then did Mr. Powers say to you then, "There were those barges that overran as high as 10 or 15 per cent, and as high as 35 or 40 per cent?"

A. His reply to that statement that we wanted him to tell the truth, was, there was something wrong there.

My recollection is that the percentage of barge overruns was not mentioned in that conversation. It may possibly be, though I do not recall it, that we asked him about instances when one barge overran 9%, but we did not put to him any general question

(Testimony of Warren Olney, Jr.)

whether he knew that the barge overrun was 9% only. I don't recall whether we said to Mr. Powers: "Mr. Powers, Mr. Mills' books were left around there so that anyone could see them, were they not," or whether Mr. Powers answered: "No, they were not. They were kept locked in Mr. Mills' desk." That may or may not have taken place; I really do not recall.

Q. Did you say to Mr. Powers: "Mr. Powers, do you know that the barge overruns was only 9 per cent?"

A. My recollection is that the percentage of the barge overruns was not mentioned in that conversation. [1846—1781]

Q. Will you say it was not mentioned, Mr. Olney?

A. No, I would not say that positively.

Q. Will you say that Mr. Powers did not say to you, "Then those barges overran 10 or 15 per cent, and as high as 35 or 40 per cent"?

A. If it came up at all, Mr. Sullivan, it did not come up in the way of Mr. Powers saying anything to us about the overruns, but came up in connection with our asking him about it.

Q. But you will not deny that you said to Mr. Powers, "So you know that the barge overrun was only 9 per cent." A. Only 9 per cent.

Q. Yes.

A. We may possibly have asked him about instances where one barge overran 9 per cent, but speaking of the general barge overrun, there was no

(Testimony of Warren Olney, Jr.)

such statement as that. I am not at all certain—in fact, my impression is that the percentage of overruns was not mentioned, but I would not be sure about it.

Q. Did you say to Mr. Powers: “Mr. Powers, Mr. Mills’ books were left around there so that anyone could see them, were they not?” And Mr. Powers answered, “No, they were not, they were kept locked in Mr. Mills’ desk?”

A. I don’t know really whether that took place or not; it may have.

We did tell Mr. Powers that if he were asked about this visit to our office, to tell about it by all means. Mr. Powers was not in our office more than once.
[1847—1781½]

[Testimony of William Chisholm, for Defendants
(Recalled).]

WILLIAM CHISHOLM, a witness recalled for the defendants, testified as follows:

Direct Examination by Mr. KNIGHT.

I never had any conversation with David G. Powers or with Edward Powers respecting the coaling of the Pacific Mail steamers from the barges, wherein I told them, or either of them, to keep his or their mouths shut. I never had any conversation with Mr. David G. Powers respecting the coaling of the Pacific Mail Steamship Company’s steamers when he was employed with the Western Fuel Company. I did have a conversation with Engineer Bunker of the steamer “Manchuria” at the time

(Testimony of William Chisholm.)

when he stated he was short of coal, in which conversation I told him to thoroughly investigate his case before making any statements regarding shortage, and if he had anything of that character to tell to be careful not to air it around but to give me his evidence direct. I told him I wished to investigate the matter. This all has reference to the complaint that has been put in evidence respecting the voyage of 1909.

Roughly speaking, the vertical distance from the point where buckets are dropped on the barges of the Western Fuel Company to the bottom of the lowest forward reserve bunker of the steamer "Manchuria" would be 70 or 80 feet. The bituminous coals that the Western Fuel Company furnished to the Pacific Mail Steamship Company would be greatly broken up and closely packed in the course of this drop. In other words, the measurement of the coal in that bunker would be misleading as to weight because it would be packed so hard and firm after this long drop.

Cross-examination by Mr. SULLIVAN.

I know nothing about the proportion of the screenings [1848—1782] in the coal supplied to the Pacific Mail Steamship Company by the Western Fuel Company. I could not estimate the proportion. I could not tell between ten and fifty per cent the quantity of screenings in the coal on board the liner. I do not know what the specifications of the Pacific Mail Steamship Company's contract called

(Testimony of William Chisholm.)

for. I do not know whether the liners were supposed to receive average coal, or coal that contained mainly screenings, or coal that contained mainly lumps. I have never seen the contract. I do not directly pass on the quality of the coal taken aboard the liners. The packing of the coal would depend more or less upon the quality.

Mr. SULLIVAN.—Q. Did you, after Eddie Powers had left the employ of the Western Fuel Company, and about the time the investigation by the Government of the Western Fuel Company's affairs became public, did you not have a conversation with him in which you said to him, in your office, "Are they guilty?" referring to the officials of the Western Fuel Company, and Powers said, "Yes, the books show it"; and didn't you say, "And did Smith and Mills know it," and didn't he say "Yes." Didn't that conversation take place?

A. It is possible that it did. I had a conversation with him. I could not—I don't remember just exactly what that conversation was to the word.

Q. Didn't you say to Powers, "Are they guilty?"

A. It might be possible I said that.

Q. And didn't Powers, in response to the question, say, "Yes, the books show it?"

A. It is quite possible he did. I remember having a conversation with him at that time, I believe, I don't remember just exactly what words were used.

Q. Didn't you have a conversation to that effect with Eddie Powers? A. It is possible I did.

* * * * *

(Testimony of William Chisholm.)

Q. Did you not, in the same conversation, say "I always told you you couldn't buck up against the coal men's own game?" A. I don't remember that.

Q. Will you deny that you did not make use of that expression to Eddie Powers?

A. No, sir. [1849—1783]

Q. You will not deny it.

A. No, sir, I would not deny it; I don't remember of ever saying it.

(Bulletin 63 of the United States Bureau of Mines was here introduced in evidence as Defendants' Exhibit "PP.")

Thereupon the following proceedings ensued:

Mr. OLNEY.—I will read from Bulletin 63, of the United States Bureau of Mines, entitled, "Sampling Coal deliveries, and Types of Government Specifications for the Purchase of Coal," by George S. Pope, and I read from pages 8, 9, 10 and 11. The portion of the bulletin from which I read is headed, "Practical Considerations; Moisture."

"The specifications which were used for the purchase of coal on the head-unit basis prior to the fiscal year 1912-13 were on the B. t. u. (British thermal unit) 'as received' basis; that is, payment for delivered coal was directly affected by the moisture content of the sample received by the laboratory. This method was based on the assumption that the moisture in the samples collected at the time of weighing and delivery could be preserved with slight loss during the storing and subsequent working down of the gross sample to a quantity convenient for transmittal

(Testimony of William Chisholm.)

to the laboratory and in its later treatment in the laboratory. From experiments that have been made and from a large mass of data, it is known that the moisture content of coal does not remain constant, and that the moisture content reported by the laboratory may be as much as 5 to 10 per cent lower than that [1850—1784] actually contained in excessively wet or high-moisture coal at the time of weighing.”

Then follow some matters connected with that particular thing which it is not necessary to read here. Then it goes on as follows:

“If coal of uniform B. t. u. ‘dry coal’ value is delivered on a contract, the contractor receives the advantage on any delivery in which the moisture content approaches the maximum specified, because he is paid for the weight of water contained in the coal in excess of a normal amount, whereas if the coal is very dry, containing less than the normal amount of moisture, the purchaser receives the advantage.

“For example, coal is delivered under a contract in which the standards are 14,300 B. t. u. per pound, ‘dry coal’ and a maximum moisture content of 3.5 per cent. The heating value of a ton (2,240 pounds) of ‘dry coal’ would be 32,032,000 B. t. u. Assume that the average moisture content of deliveries for a year is 2.5 per cent, then for every 2,240 pounds of ‘dry coal’ having a heating value of 32,032,000 B. t. u., the purchaser is required to pay for 56 pounds of water at the same rate per ton as for ‘dry coal,’ but as this percentage of moisture in average

(Testimony of William Chisholm.)

deliveries is inherently a constituent of the coal, it is considered as part and parcel of the coal by both the purchaser and the seller. If the coal delivered contains 3.5 per cent moisture, to procure 32,032,000 B. t. u., 'dry coal,' the purchaser has to pay 1 per cent more for coal because of the excess water above the normal amount, whereas, if the coal contains 1.5 per cent moisture, the [1851—1785] purchaser pays 1 per cent less for water. As the variations in moisture content, 1.5 or 3.5 per cent, are largely accidental, the season of the year being partly responsible for them, it is equitable that the purchaser and seller should share the uncertainty. The purchaser justly has a right, however, to demand that the seller shall guarantee a maximum moisture content, as a means of enabling the purchaser to compare one coal with another, as a guarantee that the seller will observe precautions against delivering coal that is unduly wet, and as a basis for adjusting the price of exceptionally wet coal.

“The United States Weather Bureau in its annual reports gives the total precipitations per month and the maximum in 24 hours for different sections of the United States. At Washington, D. C., the greatest rainfall for any one month during the year ended December 31, 1910, was 5.89 inches, and the maximum for 24 consecutive hours was 3.67 inches.

“As an example of the effect of a heavy rain on a car of coal in transit, a precipitation of 3 inches of water on a loaded 50-ton car, area of top about 360 square feet, would increase the weight of the coal

(Testimony of William Chisholm.)

5.01 per cent, provided none of the water drained out or evaporated. It is obvious that if this coal is weighed and delivered immediately, special samples for moisture determinations should be collected and prepared at once and sent to the laboratory, as a basis for equitable adjustment of payment on account of the excessive amount of water in the coal. As the weight of the coal was increased by the excess water, there should be a corresponding decrease in the price to be paid.

“If a railroad car or wagon so rained on should not be unloaded immediately after weighing and special moisture [1852—1786] samples should not be properly collected, prepared, and sent hermetically sealed to the laboratory, it is obvious that the purchaser would pay a higher price than warranted, especially if the car or wagon stood for some time before sampling and some of the water drained out. Further, if the coal was not immediately unloaded and sampled or if the car continued in transit after weighing, then the coal at the top would soon dry; and in either case the effect of the 3 inch rainfall, as indicated by the analysis, might be only a fractional percentage of the moisture contained in the coal at the time of weighing.

“The determination of the moisture of coal delivered from stock piles is often of great importance, for the proportion of moisture contained in the small sizes, which are most abundant near the center of a stock pile and which absorb the rains, and melting snows in districts of heavy snows, may be from 10 to

(Testimony of William Chisholm.)

15 per cent higher than when stocked. It is apparent, therefore, that special moisture sample determinations are necessary for equitable adjustment of payment on account of excessive moisture in coal which is stocked in piles exposed to the weather.”

Mr. ROCHE.—I understand that the entire bulletin itself is considered in evidence.

Mr. OLNEY.—Yes.

Mr. ROCHE.—There are certain other parts of the bulletin we may want to use.

(Said Bulletin 63 was here marked Defendants' Exhibit “PP.”)

[Testimony of Frederick C. Mills, for Defendants.]

FREDERICK C. MILLS, one of the defendants, having taken the witness-stand, and having been sworn, testified as follows:

Direct Examination by Mr. STANLEY MOORE.

I reside in Alameda and have there resided about 21 years. I am superintendent of the wharves and barges for the Western Fuel Company, and have occupied that position ever since the company started—January 1, 1903. Prior to that time I had worked for John Rosenfeld's Sons since 1888 or 1889. **[1853—1787]** My duties with the Western Fuel Company are to keep the bunkers and yards in proper condition, carry on the business, keep the barges up, deliver coal from barges to steamers, discharge coal into barges, and also into the bunkers and yards of the company.

Under the Rosenfelds I was likewise superintendent of the barges with the same duties, and I also

(Testimony of Frederick C. Mills.)

attended then to the loading of a dispatch line of sailing vessels which Rosenfelds ran between here and New York. I also engaged freight for them.

Prior to January 1st, 1903, the barges operated by the Rosenfelds were the "Melrose," "Theobold," "Nanaimo," "Corsair," and "Ludlow." During 1912, the Western Fuel Company operated all the barges I have named except the "Ludlow," and, in addition, they operated the "Wellington," and the "Ruth." In that year the "James Nesbitt" was used as a storage barge. Under me are men who have supervision and charge of the barges. The position now occupied by Mr. Mullen, and formerly occupied by Mr. David G. Powers and by Mr. Edward Powers is entitled foreman of the barges. Under the foreman of the barges come the hatch-tenders, and under the hatch-tenders the stevedores and the engineer who discharges the barges. The number of stevedores that we have in our employ on an average, counting both those in the barges and those assigned to the unloading of ships, would be 60, but at times we have as many as 120. The number of stevedores usually employed in the discharge of a vessel at the bunkers would, if four hatches are working, be 40. The crew for each hatch corresponds exactly as to number and positions occupied, [1854—1788] to the complete crew of a barge, leaving out of account the hatch-tender, though sometimes if the coaling from a barge is going on slowly, we cut down the number of stevedores from 8 to 6. The usual crew of a barge consists of 8 stevedores, a hatch-tender, and the engineer

(Testimony of Frederick C. Mills.)

who operates the hoisting, while the usual crew for the hatch of a vessel discharging at the bunkers consists of an engineer up in the hoppers, a hatch-tender or foreman at the edge of the hatch, and 8 stevedores filling the buckets down below. I have nothing whatever to do with the selection of the individual stevedores who shall compose these various crews. My acquaintance with the stevedores is very limited. It is true that during the 9 or 10 years in which the Western Fuel Company has been engaged in business hundreds and hundreds of different men have been employed as stevedores.

Such instructions as I give to the foreman of the barges or to anyone connected with the barges are to the effect that the buckets shall always be kept even. I have never told anyone, either foreman, hatch-tenders, or stevedores, that the buckets were to be loaded to overflowing when weighed and were to be underloaded or loaded only half to three-quarters full when they are not weighed. It is not true that even on a single occasion I ever told Edward Powers that I wanted any buckets either underloaded or overloaded. When the coal is discharged from the vessels into the bunkers it is supposed to be distributed into the different bunkers or receptacles, and some track of the weight of the coal thus deposited kept. A considerable proportion of that coal is deposited into the wharf bunkers and a considerable portion also into the yard bunkers. [1855—1789] Only clean coal is taken out from the yard and the

(Testimony of Frederick C. Mills.)

wharf bunkers through the chutes at the bottoms of those bunkers. That coal is delivered to dealers in town or in the country, and also to the Government. The coal is cleaned by running it over a screen and the screenings are dropped down to a hopper and go onto a belt directly under that hopper and are carried ultimately into what we call the screening bin.

We have a screening bin in the yard as well as in the bunkers on the wharf. Coal coming from the yard bunkers goes into the yard bin, and from the wharf into the wharf bin. So far as the wharf bunkers are concerned the screens are at the bottom with the traveling belt or conveyer underneath that takes these screenings directly into the wharf screening bin, from which they can be conveyed by another belt up to the loading place on top of the bunkers, which is a little stand alongside of the track, and out toward the center of the bay. In order to load the screenings that come out of the yard bunkers into the cars on top of the bunkers you have to draw the screenings out of the yard screening bin into carts brought onto the wharf. We have a place cut out in the wharf where these screenings are dumped and there is a belt underneath this place which receives them, and then the screenings are run up again in the same way as the screenings are run from the wharf bunkers themselves. In other words, the screenings are not separated until the weighing of the coal has been done. The bulk of the screenings that are thus tapped out of the yard bunkers and

(Testimony of Frederick C. Mills.)

wharf bunkers are eventually delivered into the barges. When the barge is fully loaded I should say that in the neighborhood [1856—1790] of 30 to 35 per cent of its cargo is screenings. The largest proportion of the screenings of the Western Fuel Company since the fire of 1906 have gone into the barges. I should say also that account has been kept of the majority of the screenings thus delivered. It occasionally happens that screenings go into the barges without being weighed. I should think that would happen possibly 6 or 7 times a year. Screenings are never sent into the offshore pockets to be deposited or retained there unless they have been weighed.

Q. Well, then, where do the screenings go, and under what circumstances that you say occasionally or perhaps half a dozen times in the course of a year that are not weighed?

A. Well, that would happen, Mr. Moore, when a ship was discharging, and especially if we were taking coal directly to the barges from that ship, it might be coming out of the between-decks, providing the ship had between-decks, or when a ship was nearly finished, and the run of coal would be coming out of that ship, after striking the skin of the ship it would be almost clean coal, then we would run screenings direct to the barges through the offshore pockets, mixing with this coal as it went into the barges.

Q. Well, then, practically the only time that it would ever happen would be when you were busy up there, and you dropped it right through what might

(Testimony of Frederick C. Mills.)

be termed an open pocket?

A. That is right, it would go through an open pocket and the screenings would be run then without being weighed, on account of the work going on at the [1857—1791] scales at the time, and not interfering with it.

Q. If on such occasions you don't weigh those screenings, why is it that when putting screenings into an offshore pocket to be retained there, or stored there, that you weigh such screenings as that?

A. Because we never know just where those screenings are going when we put them in the offshore pocket, and so we weigh them, so as to have an exact weight in case we use the screenings in any other way than putting them in barges, as we cannot weigh the screenings once they are put in the offshore pockets.

Q. What is the fact as to whether or not you know where any of the coal is going which you put into an offshore pocket for the purpose of storing it there, or remaining there for some space of time?

A. Well, the only coal that we put in there that we know where it is going would be steam coal; that, of course, we would put in there when we had not any barge to load at the time; when the ship was discharged, we would put it in the offshore pocket and let it remain there until a barge was empty, or until we wanted to put it in a barge, and then we would bring the barge there and tap it out.

Q. Do any other boats or vessels, or craft of any kind receive coal on any occasions out of those off-

(Testimony of Frederick C. Mills.)

shore pockets, save and except the barges belonging to the company, about which we have been speaking? A. Yes, sir, very often.

Q. What is the fact in regard to the coaling of vessels directly from those offshore pockets?

A. Well, we always weigh the coal when it is deposited in the offshore [1858—1792] pockets, keeping a record of the weight of those pockets, and if a ship comes there, we give them that pocket and charge it up according to the weight that has gone in there.

Q. What is your aim or endeavor, Mr. Mills, with respect to coaling vessels in that way?

* * * * * * * *

A. Because it saves considerable expense by coaling in that way, and we always make it an object to bring a ship in that way if it is possible to do so.

BE IT REMEMBERED that thereupon the following testimony was given and that the following proceedings occurred:

Mr. STANLEY MOORE.—Q. Now, Mr. Mills, the public accountant examining these books of yours, states that there is an average overrun on those barges during the entire year under investigation here of 4.88 per cent; I want to ask you whether it is possible for one of those barges to overrun 20, or 30, or 40 per cent?

Mr. ROCHE.—That question is objected to as calling for the conclusion of the witness, and it is indefinite so far as the foundation is concerned, and

(Testimony of Frederick C. Mills.)

upon the further ground that it is not a question which endeavors to elicit any facts of the witness.

The COURT.—The objection is sustained.

Mr. STANLEY MOORE.—We desire to save an exception to the ruling of the Court.

Q. During the course of the entire 8 years for which these barge tables have been prepared, and according [1859—1793] to a table submitted by Mr. Costello on behalf of the Government at the conclusion of their testimony, there appear two instances in which the barge overrun, according to your books, would amount to 30 per cent, and two instances in which the barge overrun would amount to 40 per cent, I want to ask you, Mr. Mills, whether those represent actual overruns, whether those represent an empty barge and so much coal put in and so much coal taken out? A. No, sir—

Mr. ROCHE.—One moment: That question is objected to, may it please the Court, on the same grounds that we urged in support of our last objection.

The COURT.—That is rather more complete; the objection is overruled.

Mr. STANLEY MOORE.—Q. Now, for example, they mentioned the “Nanaimo” in February, 1906, and they credit the “Nanaimo” with an overrun of 32.5 per cent. I want to ask you this question, and don’t answer it unless the Court tells you that you may: Whether or not it would be possible to trip those buckets and dump the coal on the “Nanaimo” to the extent that it would overrun the quantity of

(Testimony of Frederick C. Mills.)

coal actually received by her to the extent of 32.5 per cent?

Mr. ROCHE.—The same objection.

The COURT.—The objection is sustained.

Mr. STANLEY MOORE.—We note an exception.

Q. Mr. Mills, what is the fact in regard to those books, as to whether or not particular instances of coal being charged in and coal being taken out represent the coal and all of the coal that went into her out of that [1860—1794] barge, or was in the barge when the coal referred to was first laden into her?

* * * * *

A. The only weight put down chargeable to a barge is where coal is actually weighed and the weight is given to me; that I enter only against the barge. Other coals may have gone into that barge unweighed which I pay no attention to whatever.

Q. When you take a particular barge on a particular day and credit coal as having been loaded into her does that or not signify, or is any mention made as to whether or not there is coal already present in that barge? A. It does not.

Q. Now, Mr. Mills, how often does it happen in practice in regard to the operation of those barges, that when a barge is brought alongside of those bunkers to receive coal which is in fact empty and cleaned, how often does a condition like that occur?

A. It is very, very rare; it is very rare that they ever come back cleaned out.

Q. How long would you have to follow one of those

(Testimony of Frederick C. Mills.)

barges in order to determine, if you could determine it, the amount that that barge had actually overrun with respect to the coal that was actually charged into her?

A. Well, I should say, Mr. Moore, to be fair on a proposition of that sort, you would have to run along the way my books are kept for two or three years before you could form any proper estimate of an overrun in the barges.

Q. Do you know, Mr. Mills, whether or not in figuring those barges by years there is any case in which [1861—1795] the barge overrun of a single year amounted to as much as 7 per cent.

A. No, sir, there never was.

Q. What is the average by the year that those barge overruns amount to according to your computations?

Mr. ROCHE.—Do you mean according to his books?

Mr. STANLEY MOORE.—Yes, according to his books.

* * * * *

A. I should say between 4 and 5 per cent would be the highest.

The coal when it is loaded into barges, whether weighed or unweighed, still remains the property of the company. We regard the barges, therefore, simply as a storage proposition.

BE IT REMEMBERED that thereupon the following testimony was given, and that the following proceedings occurred:

(Testimony of Frederick C. Mills.)

Q. How important is it, so far as the business of the company is concerned that absolutely accurate track be kept of an account of the coal that is laden into the barge?

Mr. ROCHE.—That is objected to as immaterial.

Mr. STANLEY MOORE.—I will put it so far as the discharge of his duties are concerned.

The COURT.—That does not make any difference, whether it is important, or not; the question is has it been done. The objection is sustained.

Mr. STANLEY MOORE.—An exception.

Q. When is it, Mr. Mills, that you enter up an overage with respect to those barges,—what determines the time that you make an entry of that kind?
[1862—1796]

A. The reason those entries are made, Mr. Moore, if I can explain it in this way, or allowed to, is that that book of mine is nothing but a blotter, and there are very limited spaces for each day's work, and consequently I could not carry on a barge the way they should be carried on until they are really discharged; the overage shown in those barges according to the amount of coal received is simply whenever an overage shows after the barge has finished delivering to any one steamer, no matter whether it happens to be 100 lbs. or 100 tons over, that overage will show.

Q. And is that true, no matter as to whether or not when the coal started to be charged into that barge there were 100 tons or 100 lbs. in it already at that time?

(Testimony of Frederick C. Mills.)

A. That cuts no figure in it at all; it would be just the same.

Q. Suppose a barge should come up to the bunkers to-morrow to be loaded and should actually have on board when it was made fast to those bunkers there as much as 150 or 200 tons of coal, state whether or not you would make any mention of the presence of that coal already in that barge.

A. There would be no mention of it at all.

Q. How often do you think, according to your experience and observation of those barges it occurs that a barge does come alongside of those bunkers which actually has no coal on board of it at all?

A. Very seldom.

Q. How much do you think any of those barges ever did as long as you have been connected with this company actually, and as a matter of fact exceed by its out-turn weight the amount that had been charged into it? [1863—1797]

Mr. ROCHE.—That is objected to as calling for the opinion and the conclusions of the witness.

Mr. STANLEY MOORE.—I think he can give that, your Honor.

The COURT.—The objection is sustained.

Mr. STANLEY MOORE.—An exception.

I account for the 4 or 5 per cent overage of the barges, which is the overage that I have given year by year, by the method of weighing coal in, the moisture in the coal, the hosing of the coal, and the method of weighing the coal out of the barges again. I have often observed the custom-house officials weighing

(Testimony of Frederick C. Mills.)

the imported coal. They use an up-beam which varies; sometimes I have seen an up-beam go up quite naturally when they catch the weight and again I have seen it go up and strike the top of the frame. In the discharge of large cargoes of coal it is recognized by the custom-house that a rising beam shall be used. In my opinion, based on observation over a number of years, I think the difference on the average between the weight taken upon a rising beam, according to the Government regulation, and on an evenly balanced beam, would run anywhere from $\frac{1}{2}$ to $\frac{3}{4}$ per cent.

I am just a practical coal man, not an expert on coal or on the oxidation of coal. I never heard of oxidation before I came into this court. I do think, however, that the coal which went into the barges, being 35% screenings, and on which coal there has been credited an overage of 4 or 5 per cent, was beyond a doubt increased in weight by rain or by hosing. The coal coming out of the offshore pockets during the winter months, even though a considerable [1864—1798] interval of time may have elapsed since rain had last fallen, always showed considerable moisture. The fine coal gives the appearance of moisture more distinctly than the lump coal.

The practice of loading a liner by hoisting the coal up her side from the barge has been in vogue at this port ever since I have been in the coal business. I did not introduce that custom.

I know something about the trimming of a vessel.

(Testimony of Frederick C. Mills.)

It is necessary to wet the coal down when it is dry and dusty because otherwise the men won't work in the bunkers. I have known them to come out of the bunkers and refuse to go back until the coal would be wet down.

I have said that part of the 4 or 5 per cent overage of coal in the barges was due to the method of weighing the coal out of the barges in addition to other causes that I have mentioned. By the method of weighing the coal out of the barges I mean this: That the men have more time to fill the buckets when weights are not being taken than when weights are being taken and that, therefore, there might very naturally be a little more coal on the former than on the latter occasions. I think there is a slight gain by the method in which it is weighed out on account of the buckets; that is, when buckets are going out rapidly the men don't take possibly the same length of time to fill the buckets as they would when they were weighed, and possibly when they are weighed there might be a slight amount more of coal in the buckets than when they are going up constantly. As to the taking of weights by the Government officials, I have seen them weigh buckets all sorts of ways,—sometimes one bucket at a time, sometimes two, and sometimes three, or four, one after another. The Government officials call for buckets whenever they see fit to do so.

This overrun on the barges amounting by the year to between 4 and 5 per cent, over and above the coal charged into the barges in accordance with the cus-

(Testimony of Frederick C. Mills.)

tom-house weight [1865—1799] is an overrun or excess that is limited only to that coal that is charged to the barge and does not take account of and would be reduced by the screenings to the extent to which screenings go into those barges that are unweighed, and of which no track is kept. There is not any real necessity for weighing the screenings which go into a barge which is being coaled from a vessel, because it makes no difference what coal or what amount of coal goes into the barges which are regarded simply as a storage proposition. The only thing we look for is the weight of the coal as it comes out of the barges, not as it goes into them. That is particularly true in the case of screenings. The land business of this company in screenings is very limited indeed.

I am acquainted with David G. Powers and with Edward Powers. I never, as long as David G. Powers was connected with the Western Fuel Company or in its employ, instructed him to tell the hatch-tenders below him to overload the buckets when they were to be weighed and to underload them when they were not to be weighed. Edward Powers was employed by the company for a time as a barge foreman. His connection with the company terminated in July, 1911. It happened at a time when I was away sick. On my return I found that he had not been on hand for over a week and he did not turn up for 4 or 5 days after I came back. I then told him that his services with us were at an end. In his first years of employment with the company I

(Testimony of Frederick C. Mills.)

found Edward Powers a very good man indeed. My sickness to which I have just referred lasted about three months. Before I went away I spoke to him in regard to his work [1866—1800] on several occasions.

I remember a time when the scales got out of order on the Mission Street bunkers,—I cannot give the year. The incident occurred in connection with the unloading of the “Dumbarton” or “Germanicus.” I went up there and looked at the scales and observed their condition. I found that the bunkers had settled, with the result that the scale, with a certain weight upon it, would rest upon what we call the protecting posts, of which there are four under the scales. As a result of this condition the scales did not register the correct weights. The purpose of those protecting posts was to prevent the cars from going down through the bunkers in case the scales should break.

As a result of the settling down of the bunkers which I have mentioned, the scales came in contact with one of those protecting posts. If that incident occurred in the year 1905, the bunkers at that point must have been about 10 years old. It might have been more than that. I am not quite positive as to the number of years.

There is a considerable vibration on the top of the bunkers during the discharge of a ship, resulting from the operation of the towers and the running of the cars over the tracks.

I am well acquainted with the Folsom Street

(Testimony of Frederick C. Mills.)

bunkers. I remember the two beams upon which the scales-house rests there. I cannot recall any change whatever in the appearance of those beams. I never gave any orders to Mr. Mayer, or to anyone else, to the effect that I wanted the cars overloaded to such an extent that the coal would come in contact with and be scraped off by those beams. [1867—1801]

Platforms are always placed underneath the towers or hoppers when a vessel is discharging imported coal. There are spaces between the towers which are open. The Western Fuel Company shortly after acquiring the Folsom Street bunkers had the sides of the cars built up so that if a hopper got caught and the coal overflowed, it would check itself in a short space of time, and no more coal would continue to fall down. I should say that the sides and ends of the car were raised possibly a foot or eighteen inches with a view to this end.

I never gave instructions to Mr. Mayer to the effect that he should instruct the men working on the top of the bunkers to dump a trainload of cars whenever they got a chance without first bringing that trainload to the scales. We always employed men on top of the bunkers whose express duty it was to shovel back coal onto the cars that might have overflowed. If coal overflowed to any extent the discharging of the ship and all work on top of the bunkers would suffer interference.

Mr. James B. Smith never gave me any instructions to tell anyone to overload the buckets that were

(Testimony of Frederick C. Mills.)

to be weighed and to underload those which were not to be weighed in connection with the discharge of barges into liners. Nor did he ever tell me to tell Mr. Mayer to have the men load up the cars so that the coal would be shoved off by the beams underneath the scales-house, or to let the hoppers run so that the coal would overflow the cars and give the men a chance to shovel it down into the bunkers below. Mr. Smith's instructions to me were always to have the business carried out in a strictly [1868—1802] correct manner. He told me that if ever I found a man in the employ of the company who was getting into trouble or bringing about trouble with the Government authorities to discharge that man immediately. I have never at any time entered into any conspiracy with anybody to defraud the Government with respect to duties or drawbacks by means of the manipulation of scales or otherwise.

I never told David G. Powers, in connection with the weighing or checking down on the dock of the Pacific Mail Steamship Company, to give the Western Fuel Company the best of it.

Cross-examination by Mr. SULLIVAN.

As superintendent of bunkers and barges for the Western Fuel Company, I am on the Folsom Street bunkers possibly once or twice a day. At other times I am in the office or around the waterfront wherever my duties might call me. I am occasionally on the Mail dock.

I could not say how many men, or how many motor-men I have had employed on the bunkers during the

(Testimony of Frederick C. Mills.)

last ten or eleven years. We generally employ three motormen to operate the trains for the bunker. My time-book should show the different motormen who have been employed since 1903. The hatch-tenders personally employ the stevedores to work in the barges.

Personally, I have no control whatever over the selection or employment of these stevedores. The head stevedore, Mr. Schultz, personally employs the stevedores that discharge the coal from the vessels into the Folsom Street bunkers. I should say that during the last 10 or 11 years several hundred of these stevedores have been employed on [1869—1803] barges and on ships. I believe that quite a number of these men on the barges have been in the employ of the company for several years at a time. I know some of them by sight, but not by name. Whether there are at the present time many stevedores who have been employed and engaged for many years on the barges I could not say. We have seven barges in all in the service, I think. If they are all working we have about 70 men employed. I presume that the hatch-tender employs the same men time and again, but I do not know. I could not say whether we have to-day in the employ of the Western Fuel Company stevedores who have been with us since the year 1903, or even during the last 3 or 4 years.

I have given the instructions to keep the tubs evenly filled to every hatch-tender we have ever employed on the barges. I do not give that instruction

(Testimony of Frederick C. Mills.)

very often. It is not necessary except where there is a change of hatch-tenders. Quite a number of different hatch-tenders have been employed by the company since 1903. There may have been as many as 20. I have myself very often actually observed the operations on the barges as they are discharging into ships of the Pacific Mail Steamship Company, and into other vessels. It is not particularly my duty to watch the stevedores loading the buckets and discharging them into the ships. I never had any conversation with Eddie Powers about the filling of buckets other than to instruct him that they were to be kept level. I may have told Eddie Powers to avoid trouble with the custom-house officers, but I do not recall that. In answer to the question whether I have been on friendly terms with all the custom-house [1870—1804] officers since the year 1903, I will say that I don't know all the custom-house officers. I may have instructed Eddie Powers, and I may have instructed other people not to have trouble with the custom-house officers, but I do not recall having done so. In answer to the question whether I ever told Eddie Powers to employ the right kind of stevedores to work upon the barges I will say that I never instructed Eddie Powers to employ any stevedores at all.

I have a relative named Al. Witte who has been employed a good many years in the weigher's department in the custom-house. It is not a part of his duty to assign men to the barges of the Western Fuel Company for the purpose of weighing. He has

(Testimony of Frederick C. Mills.)

never, so far as I know, had charge of the weighers. I don't remember his acting as drawback weigher on the barges, except very occasionally to relieve another weigher for a short time.

I have never seen the contracts entered into between the Western Fuel Company and the Pacific Mail Steamship Company for the purchase of coal by the latter from the former. I do not know the quality of coal called for by the contracts, nor the proportion of screenings allowed under the terms of the contract.

We have a bin for screenings in the yard and a bin for screenings on the Folsom Street bunkers. As I have testified on direct examination, the screenings from the yard cannot reach the Folsom Street bunkers without being hauled there in carts, and when so hauled they are deposited, not exactly in a bin, but in an opening in the wharf itself where we dump them, there being a belt underneath [1871—1805] this opening which catches the screenings and conveys them up to the screening bin. Later when those screenings are required for the barges, they are conveyed by another belt up to a bin on the wharf where we have a chute attached so that we can dump the screenings into cars. Sometimes those cars of screenings are weighed, but that is not the general practice. I have heard, but I do not know, whether the man makes a mark on the car for each load of screenings that he conveys to the barges.

I have not myself seen the man in charge of the car do that. Mr. Mayer has told me that that was

(Testimony of Frederick C. Mills.)

done. That is, he has told me that the men running the trains keep tally on the side of the car. He has not told me that every time a load was not weighed on the scales of the company a mark was made on the car to indicate that load. He simply told me the men running those trains kept tally on the side of the car. That is all I know in reference to it.

Mr. Mayer made daily reports to me relating to the discharge of ships at bunkers. These reports are copied into my dock books or diaries. I generally keep the reports on file for a year and at the end of the year destroy them. I have some of those reports for this year. I have not got any for 1913. My file holds only a year's reports. I kept the 1913 reports up to the end of that year. I have no 1912 memoranda or reports either. I destroyed the reports for the year 1912 at the commencement of the year 1913, and I destroyed those for the year 1913 at the commencement of the year 1914, during this trial, and namely, somewhere along about the 3d or 4th of January, 1914. I keep my records at the present [1872—1806] time exactly as I did in 1912 and 1913. Mr. Mayer has been making these reports to me since the commencement of 1914, just as he did before. He gets the data from the weigher now because he is personally present here in court. One of the weighers is Jack Smith and a man by the name of Hon is another. Jack Smith is Mr. J. B. Smith's brother. If that coal has been weighed into the off-shore pockets and taken out of the pockets and deposited into barges those reports would show the

(Testimony of Frederick C. Mills.)

weight of said coal. There is nothing on those reports to indicate, and there are no other reports which would indicate, the number of cars that were not weighed and the cars upon which chalk marks were made indicating the number of loads that had not been weighed. There are no reports of that character whatsoever. There are no reports whatever made to me showing the number of cars of screenings that are deposited in the barges without being weighed. I did, during the year 1912, learn from Mr. Mayer that screenings were put in the barges without being weighed, but I did not learn from him the amount thereof. I would, on occasion, tell him that the coal was running very lumpy and that he might mix from 10 to 15 per cent of screenings in with it. That is the only way in which I know that the screenings would go into the barges. He did not actually report to me that the screenings had been so deposited in the barges. I simply gave him an order to do it. I do not know and I never have learned whether those orders were carried out, but I know if I gave him an order that he would carry it out.

A. I presume the bookkeeper makes out the bills for coal supplied by the Western Fuel Company to the Pacific [1873—1807] Mail Steamship Company. I have never given instructions to anyone employed by the Western Fuel Company as to charges to be made for coal to be furnished to the Pacific Mail Steamship Company. I have no knowl-

(Testimony of Frederick C. Mills.)

edge at all as to whether there is a certain charge made for screenings sold to the Pacific Mail, and a certain charge made for other coal. I have never estimated, from an examination of any barges, the proportion of screenings in the load. I have never paid any attention to that matter. I have testified that the screenings in the coal put into the Pacific Mail Steamship Company's liners generally amounted to 30 or 35 per cent. I arrived at that estimate on account of the quantity of the coal taken from the steamers, and where it becomes necessary to use screenings in order to bring the coal up to that standard, I have done so.

On my direct examination, I said that occasionally only, screenings going into the barges were not weighed. I could not say exactly what I mean by "occasionally," but I should say somewhere possibly in the neighborhood of 6 or 7 times a year when coal was being discharged direct from ships to barges, going from the ships into the hoppers, and from the hoppers into the car by the car to the scale where it would be weighed and then back in the car to the off-shore pockets and right through said pockets into the barges. It is on these occasions when the coal coming from the between decks, or as a ship is finishing, is almost clean, that we run from 10 to 15 per cent of screenings in with the coal to the barges. At other times the screenings are weighed very often upon the scales, but not always, because sometimes they are simply tallied on the cars, as I testified [1874—1808] before. That is to say, I have been told that

(Testimony of Frederick C. Mills.)

they are tallied. I should say that the purpose of tallying was to keep a line on the number of carloads of screenings deposited in the barges without being weighed; otherwise, I do not see the necessity of tallying the cars and the purpose of knowing the number of cars was certainly to estimate the quantity of screenings that went into the barges under those conditions. I could not say whether those cars when loaded with screenings would be loaded to the top. The practice is to load the cars properly and I suppose that was done then. I do not know the amount of screenings in tons that one of those cars loaded could hold.

Mr. SULLIVAN.—Q. Now, Mr. Mills, you kept a book, did you not, showing the overages?

A. They show in my books, yes, sir.

Q. Resulting after the discharge of a barge into a ship? A. As shown in my books, there, yes, sir.

Q. In this book here, for the year 1912, I see entries showing overages; now, give me a clear definition of what you mean by the term “overages” in this book?

A. The term “overages” in that book, Mr. Sullivan, really means nothing.

Q. It means nothing at all?

A. It really means nothing, for this reason: That those barges are simply closed up—these blotters, I mean, and there is not sufficient room to carry on a barge until she is properly discharged, and the overages that are shown there are simply when I arrive at the amount of coal that has been discharged into

(Testimony of Frederick C. Mills.)

any one ship, showing an overage according [1875—1809] to the figures in that book, no matter whether it is 100 pounds or 100 tons; now, when that overage occurs in that book, there may be considerable coal still left in that barge.

Q. Notwithstanding the fact that you made an entry in the book, here, that there was an overage of a certain number of tons? A. Yes, sir.

Q. Is that the only reason why you made these entries in this book showing overages; I see this book is covered from the beginning to the end showing overages, so many tons, so many pounds.

A. That is the only reason, so I can close up and have room enough to carry on my other entries in the book.

Q. You state positively, do you, that these entries of overage are not made in the book for the purpose of showing the excess of discharge from the barge over the amount that goes into the barge, at the time you make a cleanup? A. I do.

Q. I see here also in this book some few references to a shortage; will you explain what that means?

A. That means that that barge was cleaned out at that time.

Q. That means that that barge was clean?

A. That barge was clean at that time; wherever you find a shortage it was clean. Let me tell you further, that is the only time in those books that I kept there where a barge was really fully cleaned up is where you will find a shortage of that sort.

* * * * *

(Testimony of Frederick C. Mills.)

Q. Will you say to this jury now that the only time [1876—1810] that the barge was cleaned up, or each time the barge was cleaned up, there appeared to be a shortage? A. Yes, sir.

Q. That is, each time that you cleaned up the barge it appeared that a less number of tons of coal were discharged from the barge into the steamship than the quantity of coal that was put into the barge?

A. That would show that that one entry—

Q. (Intg.) Will you answer that question, please?

A. I can't unless you put it in a different form.

Q. You have made entries here of shortages; as I understand you, you only made those entries when there was a cleanup; that is right, is it not?

A. Not a cleanup, it is not a cleanup—

Q. (Intg.) What do you mean by making the entry, short so many tons?

A. I mean in the case showing a shortage there, that is really a cleanup of the barge. At that time there is no more coal in that barge. Now, then, when you say “overages” in that account, that is not a cleanup of that barge.

Q. Can you in all your books—or say, in this book for 1912—point to a single case where there was a cleanup and an overage was shown?

A. No, I don't know that I can; I cannot recall that; it may possibly have been, but I doubt it.

Q. In every instance, then, where a cleanup was made, is it not a fact that shortage occurs, according

(Testimony of Frederick C. Mills.)

to your books, and according to your present testimony?

A. No, that would not always follow, but that is certain about a cleanup when a shortage occurs,—that I will [1877—1811] tell you, Mr. Sullivan, and there is no question about that at all. That is a cleanup of that barge, that I know.

Q. Now, is it not a fact that frequently a vessel is loaded with fuel coal by more than one barge, and on the same side?

A. I don't quite get that question, Mr. Sullivan.

Q. Don't you sometimes load a Pacific Mail Steamship with coal with more than one barge?

A. Yes, sir.

Q. And more than one barge on one side of the vessel?

A. With one barge on one side of the vessel and one barge on the other side of the vessel.

Q. Haven't you discharged into a vessel oftentimes with more than one barge on one side of the vessel? A. No, sir.

Q. Has it not often happened that one barge would clean up completely, deliver all the coal aboard, and would leave the side of the ship and another barge would take its place?

A. I don't remember that; there may be a few cases of that sort.

Q. What is the amount of coal which is generally taken by the largest Pacific Mail steamers, the "Manchuria" and the "Mongolia" and the "Siberia"?

(Testimony of Frederick C. Mills.)

A. Well, some years ago they used to take as many as between 3,000 and 3,600, or something of that sort.

Q. And in the year 1912, did you generally supply these big steamships with as much as 3,000 tons of coal for fuel purposes? A. We did not.

Q. What was the highest number of tons you supplied to the Pacific Mail steamships for fuel in the year [1878—1812] 1912?

A. Well, I cannot call to mind just how much; I should say possibly the "Korea" or the "Siberia" would take somewhere around from 2,300 to 2,500.

Q. In the year 1912?

A. Yes, somewhere in that neighborhood.

Q. And in other years with as much as from 3,000 to 3,500?

A. Not those ships, not the "Korea" and the "Siberia"; they never took that amount of coal.

Q. What vessels took that amount?

A. The "Mongolia" and the "Manchuria."

Q. What is the capacity of your largest barge, the "Wellington"?

A. The "Wellington"—on the "Wellington" we can put 2,000 tons.

Q. What is the capacity of the "Theobold"?

A. The "Theobold" would take about 1,500; we don't always put that on them by any means, though.

Q. And the "Nanaimo"?

A. The "Nanaimo" I would say would take between 1,000 and 1,100.

Q. Between 1,000 and 1,100?

(Testimony of Frederick C. Mills.)

A. Possibly a little more.

Q. And the "Comanche"?

A. The "Comanche,"—I should say about 1,300.

Q. And the "Ludlow"?

A. Well, the "Ludlow" has been out of commission a long while; I don't recall what she would take; I suppose the "Ludlow" ought to have taken in the neighborhood of between 900 and 1,000 tons.

Q. It was a small barge?

A. No, it was not a small barge. [1879—1813]

Q. How much would she take?

A. She would take between 900 and 1,000 tons.

Q. Then the capacity of the largest barge, the "Wellington," was 2,000 tons?

A. Two thousand tons.

Q. And the capacity of the others varied down to 1,000 and less than 1,000? A. Yes, sir.

Q. And you supplied coal to those ships at times to the extent of 2,300, 2,500, up to 3,500 sometimes?

A. That is correct.

Q. And is it not a fact that you had to send several barge loads of fuel time and time again to a vessel to give it the required amount of coal?

A. Sometimes we would put on three or four different barges, maybe four different barges to those big steamers.

Q. But those four would not be unloaded at the same time, would they?

A. They would not; there might be two of them unloading, or only one.

Q. As a matter of fact, only two barges can un-

(Testimony of Frederick C. Mills.)

load at the same time, can't they?

A. That is all.

Q. Do you mean to say that a barge was brought up to one of these liners, a barge containing only 1,000 tons, and after discharging 500 tons would leave and let another barge take its place? Would not that barge give up all it had before it would let another barge take its place?

A. No, sir, it would not give it all up; we have taken those barges and shifted them back when they were not fully discharged. [1880—1814]

Q. It very frequently happened that two barges containing 1,000 tons each would go to load one of those liners? A. Yes, sir.

Q. Do you mean to say that these two barges would only partially unload and would then go back and take on more coal for the purpose of putting more coal on that steamer?

A. I would say this, Mr. Sullivan, that we have to handle those barges on the tide; we are alongside the steamer discharging those barges into the steamer, we shift those barges according to the tide; for instance, if a barge was run down, for example, within 150 tons of what she had aboard, and the tide suited we would take that barge away and reload her and put another barge in. That occurs nearly all the time in handling those big ships. That is the reason why barges are not finished alongside of these steamers.

* * * * *

Mr. SULLIVAN.—Q. There is not and never has

(Testimony of Frederick C. Mills.)

been a barge that contains a sufficient amount of coal to fill one of the big liners with the regular amount of fuel, is that right? A. That is right.

Steam coal is a coal that runs heavier in screenings than other coal.

I do not know without referring to the books how many times during the last year or during the year 1912 there was a cleanup upon any particular barge, nor could I tell you without so referring to the books how many cleanups there were upon all of the barges during either of those years. [1881—1815]

I have testified here that the average of excess of discharge over the amount of coal that went into the barges was between 4 and 5 per cent. I make that estimate by taking the discharge of the barges for the year. I have done that roughly with reference to the figures in my books and not merely by guess. I have not gone over the figures accurately, but I have gone over them. I think it was possibly 5 or 6 months ago. I have not got the figures that I then made. I kept no tabulation at all. I simply made it and sent it up to the office. I took my book just as it stood, including the overages. I took the items labeled overage in the books exactly as they show there—the amount of coal that the books show was received into the barge and the amount of coal delivered by the barge.

Q. Did you treat the entries which are here as indicating a less quantity of coal discharged from the barge than went into the barge?

(Testimony of Frederick C. Mills.)

A. Just as the book shows.

The entries marked "surplus" in my books meant that there would be coal still remaining in the barge after the last preceding entry. I estimated the surplus in the same way as the overage. I simply called it an over.

I cannot recall that I ever heard of oxidation before I attended this trial. I have been in the coal business twenty odd years. I knew that oxidation causes an increase in the weight of coal, but I never paid any attention to it.

Q. But you never heard of oxidation until this trial?

A. Well, I might practically say I never had, no; I never talk about it with anyone.

(Witness continuing.) So then during the twenty odd years of my experience I never did know or learn that oxidation caused an appreciable increase in the weight of coal. [1882—1816]

(One of the dock-books or diaries of the defendant Mills was here produced and the proceedings continued as follows:)

Q. I show you an entry upon September 6, 1906, with the term "over, 41 tons, 854 lbs." on that line?

A. Yes.

Q. What does that indicate?

A. That indicates, Mr. Sullivan, on account of the discharge to this last ship, the "Acapulco," we will say, there is an overrun of 41 tons there, according to what that barge is charged with.

Q. But you say it don't indicate the excess of the

(Testimony of Frederick C. Mills.)

discharge over the amount of coal taken into the barge?

A. That is all. It just shows what has been charged against it.

Q. Now, then, you have here, under the date of the 11th, Tuesday, "Melrose," account of surplus, steamer "City of Para," 250 tons 1300 lbs. What do you mean by that entry?

A. That entry is coal that is still remaining in that barge after the delivery here, and in receiving any other coal, that simply went in there as a surplus.

Q. Now, then, I show you another entry, ex "Melrose"? A. Wellington coal.

Q. Surplus, on account surplus, 290 tons, 1605 pounds.

Mr. OLNEY.—What barge is that?

Mr. SULLIVAN.—That is the "Melrose."

A. That is the same.

Q. "City of Para"?

A. That is the following on of this entry, that is the same as this entry. [1883—1817]

Q. That would make the overage 330, would it not?

A. It makes the overage 290; this 250 was delivered, and the next day 40, which makes that 290, instead of 250.

Q. What did you do with this overage here?

A. That is also an overage there; that is correct.

Mr. ROCHE.—Q. The 290 tons plus 40 tons would make the overage?

A. That happened on account of no other coal going into the barge from any other source.

(Testimony of Frederick C. Mills.)

Mr. SULLIVAN.—Q. Will you look at this entry here and see the amount of coal that went into the “Melrose” and the amount that came out, and arrive at the percentage? A. What do you mean?

Q. The percentage of overage?

A. The percentage of overage what?

Q. The percentage of coal that went out of the barge in excess of the amount of coal that went into it. A. What do you mean, for these entries?

Q. For these entries in that book there?

A. Well, Mr. Sullivan, if you take throughout the year, you can get the percentage; you cannot get the percentage from any one entry here; it is not correct; it is not a correct percentage; it is not a percentage at all.

Q. Can't you tell?

A. No, you can't; that is not a percentage of the coal at all delivered from that barge.

Q. You can't tell?

A. To get at the percentage, the correct percentage, you have got to carry that over a length of time; you can't take up any one of these [1884—1818] entries, because these entries are not correct.

Q. You say they are not correct?

A. They are not correct. They show simply the amount of coal that is charged against the barge there in these entries, cutting them down so as to be able to carry them into this book. I made that statement before, Mr. Sullivan, that you can't get the percentage from the way these books are kept, unless you go over a length of time, go over two or three

(Testimony of Frederick C. Mills.)

years, to get a correct percentage; in fact, it ought to go over the whole length of time, from the time the company was in business up to the present time, and then you would get a correct percentage of overage. You could not get it in that way.

Q. That book, these entries, shows an average of 45 tons, is it? A. 41 tons.

Q. And 290 at another time? A. Yes.

Q. Making 330? A. Yes.

Q. Now, after that overage, you say there was still some coal went on the barge?

A. I did not say anything about that at all.

Q. You did not say that?

A. I can't recall back, Mr. Sullivan, whether there was any more coal in that barge, or not.

Q. Was there a cleanup at the time you arrived at that amount of overage and surplus?

A. That I could not say.

Q. Can't you tell, by reference to your book now, the total quantity of coal that went into the barge after a cleanup upon this barge "Melrose"?

A. No, I can't.

Q. Can't you tell from that book if she was cleaned up at any time?

A. The only time that I can tell any of these barges were cleaned up, is exactly as I told you before; [1885—1819] when a barge shows a shortage, then I know it is that barge is cleaned out. Other times, I don't know whether they were or not. They might have been cleaned out on many occasions, where there is an over shows, but that I can't recall.

(Testimony of Frederick C. Mills.)

Q. Now, have you a record anywhere, except the record of shortages showing where there was an actual cleanup of the barges? A. No, I have not.

Q. Well, haven't you always endeavored to find out definitely the amount of coal that went into the barge, and the amount that went off the barge?

A. I have not tried to find out what went into the barge. This is only what went out of the barge.

I remember a portion of the loading of the "Algoa"—I was away part of the time. I believe the coal weighed into the "Algoa" was dutiable coal. The "Algoa" was used as a store ship. When the coal was taken out of her, I believe it was placed in barges and also to some extent in schooners. I believe it was weighed out. Having thus been weighed out of the "Algoa" into barges it was weighed again out of the barges whenever delivery was made from them. The coal had to be weighed out of the "Algoa" because the Pacific Mail Steamship Company had some coal there when our coal was put in. All the coal in the "Algoa" did not belong to the Western Fuel Company. I think, if I remember correctly, 1200 or 1300 tons belonged to the Pacific Mail. That coal was not separate and apart from the coal of the Western Fuel Company. It was spread out on the floor of the ship and our coal was placed immediately on top of it. I would have to refer to the books to find out whether more coal was weighed out of the vessel than was weighed into her; possibly there was. [1886—1820] I could not tell you whether the Pacific Mail coal in the "Algoa" was of

(Testimony of Frederick C. Mills.)

the same character as the Western Fuel coal. All of the coal was not taken out at one time. I believe the Western Fuel Company weighed out all of its coal eventually.

I was present at the Mission Street dock when the upright was found supporting the platform of the scales. I did not notice that one of the uprights presented a smooth surface and that the others were covered with dirt. I did not examine the uprights for that purpose—I simply know what the Fairbanks Morse men told me—that the scales were resting on one of the uprights. I did not see it or examine it myself.

As near as my recollection serves me it was in 1904 or 1905 that the capacity of the cars on the Folsom Street bunkers was changed. We had been using the smaller cars a very short time. The smaller cars we generally filled to their capacity, but so as not to overflow. The cars were so small that there was a risk when they were heavily loaded that some of the coal would fall off, if, for instance, the chute got jammed in any way, and that would be apt to put the third rail out of business. We, therefore, changed the cars so as to prevent any possibility of overflow. The reason why the height of the cars was increased was both to add to the capacity of the cars and to prevent an overrun on the cars in case of a jam in the chute. It is customary to fill the cars properly so that they will not overrun in any way.

Q. Now, Mr. Mills, if these entries short in the books, kept by you indicate a cleanup, isn't it possi-

(Testimony of Frederick C. Mills.)

ble, by going over the entries for a period of time, say one, or two, or three months, to ascertain the exact overage? [1887—1821] A. No.

Q. In no case at all?

A. No, in no case, at all, unless you go away back; you take it in a year, for instance, when a shortage of that sort occurs, if you will go back to the previous years up to that time, then you can make your estimate, then it will give you a correct estimate of the time as far as that book is concerned, of what was received in the barge.

Q. Now, if the term short entered in your book indicates a cleanup, and on the same day you take on, say, a thousand tons, and a month after that there appears an entry in your book showing an overage of 1200 tons, does not that indicate that there was an excessive discharge of coal, discharged from that vessel over the amount of coal that went into it?

A. According to the figures in the book, yes, certainly it does.

Q. That would be a fact, would it not?

A. Be a fact in what way?

Q. Showing excess of delivery from the barge over the amount of coal put into the barge?

A. Not put into the barge, no. The figures show they are charged against the barge.

Mr. ROCHE.—If your Honor please, I would like to ask one or two questions in relation to that matter.

Q. Mr. Mills, you have testified that the word "shortage," upon your diary, or in your dock-book, indicates a cleanup; is that correct?

(Testimony of Frederick C. Mills.)

A. That is correct.

Q. So that where the word "shortage" appears in your diary, there is no more coal located upon the barge? A. That is correct. [1888—1822]

Q. Now, then, if your diary shows that during the next 30 days there have been 1000 tons deposited upon or checked into that barge these entries mean that no more than 1000 tons of coal has been checked into that barge; isn't that correct?

A. I don't know what you mean by checked into the barge.

Q. Well, discharged into the barge?

A. Those figures simply mean, Mr. Roche, the amount of coal that has gone into those barges which has been actually weighed to the barge, and that is all.

Q. Well, assume that your book shows that within 30 days, after the word "shortage" appears in your diary that 1,000 tons of coal, other than screenings, was discharged into the barge, it would mean, would it not, that 1,000 tons, in fact, did go into that barge?

A. What do you mean other than screenings—the screenings not showing, or anything of that kind?

Q. The books are not showing that any screenings went into the barge?

A. There might have been screenings gone into the barge, that that book would not show.

Q. Well, you have testified, have you not, that screenings went into the barge six or seven times a year? A. I should say that; yes.

Q. When you are not working down on the skin of

(Testimony of Frederick C. Mills.)

the boat, or near the between-decks of the boat, you would not put any screenings into the coal for the purpose of mixing the coal, would you?

A. Not under those conditions, as a rule.

Q. And unless you did put screenings into the coal [1889—1823] for the purpose of fixing the coal and getting an average coal, your books would show the exact quantity of coal deposited from your offshore bunkers, or pockets of the offshore bunkers into the barge?

A. It would, if the conditions were as you represent them, but I don't know if the conditions were so.

Q. In any event, Mr. Mills, it is true, is it not, that if no screenings had been mixed with the coal, and your book did show a shortage, and your book also showed that within 30 days after the shortage was noted, a thousand tons of coal was discharged into the barge from the offshore bunkers, that the fact would be that 1,000 tons of coal had been discharged into that barge; isn't that true?

A. It would be just as I stated before, Mr. Roche. That is a question I cannot answer, because I don't know the conditions under which that coal went into the barge, know how it came to the barge. If it went to a barge from a steamer—if you will let me look at the entry, I can tell you much quicker than I could by answering your question. The only explanation I can make of that is this, that if that came direct from a steamer to the barge, the offshore bunkers might practically be filled, and there might be one

(Testimony of Frederick C. Mills.)

or two pockets in the offshore bunker that would have to go into that barge before that coal could be put into that barge—I must know these conditions, otherwise I could not answer your question.

Q. These accounts were kept by you as superintendent of docks and bunkers for the Western Fuel Company, for the purpose of keeping some record of the quantity of coal that was discharged into the barges and the quantity of coal that [1890—1824] was discharged out of the barges; isn't that correct?

A. Only for this purpose, Mr. Roche, I only wanted to get a line on about the amount of coal that was in those barges, so as to be in a position to know when I had orders from different ships which barges to take, would have sufficient coal to coal that ship. Outside of that, I paid no attention to the amount of coal that went into these barges, except the coal that was weighed direct into them. That weight always came to me.

Q. You kept these accounts for the purpose of keeping some sort of a check upon the records of the company, and upon the quantity of coal discharged into the bunkers, and from the bunkers into the barges; isn't that true? A. Only what I have said.

Q. Isn't it also a fact, you did, from time to time, have a number of store-ships under charter?

A. Yes, we had a great number.

Q. Isn't it a fact that it frequently occurred that there was no coal contained in or discharged into these store-ships, excepting coal of the Western Fuel Company?

(Testimony of Frederick C. Mills.)

A. What do you mean, excepting coal of the Western Fuel Company? I don't understand.

Q. Isn't it a fact that the Western Fuel Company would frequently charter a boat to use that boat for storage purposes, when there would not be a ton of coal in the boat? A. In what boat?

Q. There would not be a ton in the boat which the Western Fuel Company intended to use for storage purposes. A. Yes, that is a fact. [1891—1825]

And it is also true, is it not, that you would know the weight of the coal discharged into these storage ships.

A. We would get the weight of the custom-house that went into these boats.

Q. And it is also a fact, is it not, that although you did have from the custom-house the weight of the coal that was discharged into these storage-ships, when the store-ships were discharged, you again weighed the coal over the side of the ship into the barge: Isn't that true?

A. Where the store-ships were brought, Mr. Roche, into the bunkers to be discharged again and the coal was taken from that storage barge or ship and went into the barges, it was weighed on the scales when it went into them.

Q. And it also frequently occurred, did it not, that when you were discharged these store-ships, the coal would be weighed over the side and into the barges?

A. I cannot remember a case where it was weighed over the side under those conditions.

Q. In any event, Mr. Mills, when the coal was

(Testimony of Frederick C. Mills.)

taken out of the store-ship, the coal in each instance was reweighed: Isn't that true?

A. It was reweighed.

Q. Although you knew at that time what was supposed to be the exact weight of the coal contained in the storeship, as ascertained by the custom-house weight: Isn't that true?

A. Yes, but the reason that the coal was reweighed is this, that coal did not come out of these store ships and go into one barge or two barges; that coal, coming out of a store-ship, probably went into the bunkers; the portion that went into the bunkers was weighed, and the portion that went into the off-shore bunkers would be [1892—1826] weighed, and the portion that went into the barges would be weighed; that is the reason. If that ship was going to discharge only into one of our barges, we would never weigh it until we weighed it out of the barge again, and then we certainly would.

Q. Can you recall now a single instance that coal was taken out of a store-ship and deposited upon a barge, or deposited in your bunkers when, in fact, it was not weighed? A. I cannot.

Q. During the entire history as superintendent of docks for the Western Fuel Company?

A. I believe they have all been weighed.

Q. It is also a fact, is it not, Mr. Mills, that practically from day to day you submitted a report to the defendant, James B. Smith, showing the quantity of coal discharged from these barges and likewise showing an overage and shortage, when it occurred,

(Testimony of Frederick C. Mills.)

according to your books?

A. My report, Mr. Roche, to Mr. Smith, is exactly according to my books; wherever there was an over or a shortage showed there in the barge, it was on the report that went to Mr. Smith; also the discharge every day of ships, sailing ships or steamers discharging at the bunkers, the different bunkers, was all noted in the daily reports that went to Mr. Smith.

Q. Whether your books were right or wrong, or correct or incorrect, there is not any question about it, Mr. Mills, but that the daily report that you furnished to the defendant James B. Smith did show the quantity of coal which you assumed was checked into the barge, and the quantity of coal discharged from the barge, and the [1893—1827] overage and shortage?

* * * * *

A. It is similar to my book, the report that goes to Mr. Smith.

Mr. SULLIVAN.—Isn't it a fact, Mr. Mills, that when a barge was discharging at the side of a vessel, it remained there regardless of the tide, all day as a general rule?

* * * * *

The WITNESS.—Mr. Sullivan, barges go alongside of a steamer, and sometimes remain alongside of the steamer three or four days, and sometimes even five days, not discharging all the time, but when a barge is alongside of a steamer that requires a great deal of coal, where it is necessary to put two or three barges alongside her, then those barges are

(Testimony of Frederick C. Mills.)

moved on the tide; when they get to a certain point, providing the barge would not last all day, or to the next tide, that is done on account of saving time. That has been carried out ever since I have been in the business.

Q. Don't the barge remain at the side of the Pacific Mail Steamship liners continuously until the barge is discharged, or until the steamship gets its full quota of coal?

A. No, certainly not.

Mr. SULLIVAN.—That is all. [1894—1828]

[**Testimony of Joseph H. Mayer, for Defendants.**]

JOSEPH H. MAYER, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. STANLEY MOORE.

I reside in San Francisco and am an attorney at law. I am a brother of the defendant, Edward H. Mayer. I am acquainted with the Folsom Street bunkers upon which my brother is employed as tally-man. I have visited the bunkers many times, and, particularly, during the period of six weeks or two months in the early part of 1911 when I was there almost every day, most of the time right in the scales-house. I observed the weighing of cars by the various Government weighers.

Q. Will you tell the jury, please, with what kind of a beam they weighed the coal, and describe the operation of their weighing, so far as you are able to do it, and the time consumed in the transaction?

A. Well, the cars would be placed upon the scales and a signal would be given to the weigher, either

(Testimony of Joseph H. Mayer.)

by the blowing of a whistle or the sounding of a bell, that the cars were on the scales, and thereupon the weighing would take place, and the custom-house weigher would adjust the carriage or the trolley, I think they call it, there upon the beam proper and then he would adjust the P-beam, I think they call it; the weighing was done very, very rapidly, at times almost instantaneously, and as soon as it was adjusted to a point where the beam would rise, he would lock the scale and a sound would be given to the operators who would be handling the cars, a signal would be given to them that the weighing had been done and the cars would move on. At the times the weighing was done, as I say, almost instantaneously; at other times more time [1896—1830] would be consumed.

Q. It was a very rapid operation?

A. Yes, sir.

Q. And, generally speaking, what was the fact so far as you observed them weighing down there as to whether generally it was a very rapid operation?

A. Generally it was done very quickly; yes.

Cross-examination by Mr. SULLIVAN.

I have been a practicing attorney at law since December, 1900. The reason I happened to be down there on the bunkers so much during the six weeks I mentioned was that I was just recovering from a nervous breakdown and was taking it easy and killing time.

[**Testimony of Michael Carroll, for Defendants.**]

MICHAEL CARROLL, a witness called for the defendants and sworn, testified as follows:

Direct Examination by Mr. STANLEY MOORE.

I reside at No. 10 Harrison Street. I am employed by the Western Fuel Company, and have been since its organization. Prior to that time I worked for J. C. Wilson & Company. I am at present a foreman teamster for the Western Fuel Company. I got acquainted with Mr. Eddie Powers just after the fire. I recall meeting him in this city on or about the 9th day of August, 1913. I was driving along Third Street at Bryant and he stepped out from a cigar-store and hollered to me and I drew up.

Q. Will you state whether or not, Mr. Carroll, that after hollering to you and you driving up to the curb he stated to you that he had been subpoenaed in the Western Fuel case and [1897—1831] pulled out a paper out of his pocket and showed it to you?

A. Yes, sir.

Q. Will you state further than that, Mr. Carroll, whether he did not say that he had a job to go to sea?

A. Yes, he told me had a job to go to sea.

Q. And that he had seen Mr. Tidwell and told Mr. Tidwell that he had a chance to go to sea?

A. Yes—

* * * * *

Q. And did he state that this subpoena was holding him?

A. Yes, sir, he stated that it was holding him, that he couldn't go.

(Testimony of Michael Carroll.)

Q. And did he state that Mr. Tidwell had said to him that he need not worry, and that he would get a good percentage of the money they got off the Western Fuel? A. That was the remark he made.

Q. Then did you say to him, "Do you think you will make a killing"?

A. That's what I asked him.

Q. And did he laugh and say, "I don't know"? [1898—1832]

Mr. STANLEY MOORE.—Q. And did he laugh?

A. Yes, he stooped his head and laughed and said, "I don't know." I laughed, and I said, "Are you going to make a killing"? and he stooped his head and said, "I don't know."

Cross-examination by Mr. SULLIVAN.

The teams that I drive are owned by the Western Fuel Company. I have been a foreman teamster about 12 years. I have known Eddie Powers just to speak to him, that was all. He used to holler to me as I would go by on the street, and sometimes I would stop and talk and other times I would simply shake my hand at him. He thus shouted out at me three times; once on South Park, once on Third Street and once while this trial was going on and in front of this building. He asked me to come around and drive him up to lunch, and I said I would. It is not a fact that Eddie and I have been unfriendly with one another in any way that I know. This conversation I described took place about the first of

(Testimony of Michael Carroll.)

August, 1913. He showed me his subpoena at the time, but I could only see the head of it. I was at Third and Bryant when the conversation took place. He stepped out from a cigar-store as I was driving by. I don't recall at what time of day it was. Nobody else was present. The conversation did not last more than fifteen minutes. I was then engaged in the performance of my duties as boss teamster for the Western Fuel [1900—1834] Company. I was coming from the Eighth Street yard, during working hours. At other times I just waved my hand at him when he hollered to me to indicate that I was busy and didn't want to talk. Eddie Powers did not tell me why he showed me the subpoena. I don't recall what time of day it was; I think it might have been in the forenoon. That was the first time I had seen Eddie Powers since he was discharged from the Western Fuel Company. I saw him probably three or four times after that conversation though. I did not call on him purposely to interview him; I avoided him as much as I could. I saw him once in South Park, and, again in front of this building, and once on California Street, but at no time did I engage in any conversation with him. I never engaged in any conversation with him on any topic prior to his discharge by the Western Fuel Company. I never had any conversation with Eddie Powers after his discharge by the Western Fuel Company and up to the time of this conversation in the first part of August. Of course, I used to give him a buggy in the morning when he was employed

(Testimony of Michael Carroll.)

by the Western Fuel Company, but I would not call that a conversation. I had no other dealings with him. Sometime late in August I had another conversation with him on Third Street. That is not the conversation to which I have already testified which took place earlier in August, nor was it on the same matter. This second conversation took place on Third Street. I was going to the main office on California Street, engaged in the performance of my duties. The conversation lasted probably 10 or 15 minutes.

I am not in the company of J. B. Smith a number of times during the year. I see him every day, but I do not engage in conversation with him. Of late years I do not drive him to and from the depot, although I used to before he had a machine, [1901—1835]

Q. Now, just state that conversation which you say took place in August; state what you said and what Eddie Powers said?

A. What statement do you mean?

Q. Where he referred to the subpoena, the statement you already testified about?

A. Well, I was driving along Third Street and he stepped out and he said, "Hello, Mike," and I stopped and I said, "What is it, Eddie?" and he put his hand in his pocket and he pulled out a subpoena, and he said, "I am subpoenaed by the Western Fuel Company to attend the trial," and I said, "Yes," and he said, "I had a good job to go to sea," but, he said, "This holds me now"; he said, "I went

(Testimony of Michael Carroll.)

to see Mr. Tidwell and told him about it, that I had a good job to go to sea, and Mr. Tidwell told me that I need not worry about my job, that he would see that I would get a good percentage of the money they would get from the Western Fuel Company," and I says to him, "Do you think you're going to make a killing, Eddie"; he stooped his head and laughed and said "I don't know." That is all the conversation I had with him that day.

Q. In that conversation did he say he had been subpoenaed by the Western Fuel Company?

A. No, sir, he did not say he was subpoenaed by the Western Fuel Company.

Q. He did not say he was subpoenaed by the Western Fuel Company?

A. No, he said he was subpoenaed by the Government, I guess; I didn't read the subpoena, I don't know; I don't suppose it was from the Western Fuel Company; I couldn't say because I didn't read it.

Q. A moment ago in response to a question you testified that he stated he was subpoenaed by the Western Fuel Company [1902—1836]

A. No, sir, I did not.

Mr. ROCHE.—Mr. Reporter, will you just read the commencement of that answer?

Mr. McCUTCHEN.—Very apparently he did not intend to say that.

Mr. ROCHE.—Well, let us get the testimony; he said he did not give that testimony.

(The record was here read by the Reporter.)

A. (Continuing.) Well, if I said that I made an

(Testimony of Michael Carroll.)

error in it because I could not say such a thing as that he was subpoenaed by the Western Fuel Company.

Mr. SULLIVAN.—Q. Did he tell you when he had received the subpoena?

A. No, sir, he did not.

Q. Did he tell you how long he had been under subpoena? A. No, sir, he did not.

Q. Did you read the subpoena?

A. No, sir, I did not.

Q. Did he pull the subpoena out of his pocket?

A. Yes, sir.

Q. Did he say he was subpoenaed by the Government or did he mention by whom he was subpoenaed?

A. No, sir, he did not; he said that he was subpoenaed for to attend the trial of the Western Fuel Company, in this case.

Q. He said he was subpoenaed to attend the trial of the Western Fuel case?

A. He was subpoenaed to attend the trial of the Western Fuel case.

Q. And when he spoke to you you did not know whether he had been subpoenaed by the Western Fuel Company or whether he had been subpoenaed by the Government? A. No, I did not.

Q. And you never learned it, did you, until the trial of this [1903—1837] case commenced?

A. No, I never learned.

Q. When he said he was subpoenaed to attend the trial, did you not ask him on which side he intended

(Testimony of Michael Carroll.)

to testify? A. No, sir, I did not.

Q. You did not? A. No, sir.

Q. Did he say to you what he was expected to testify to? A. No, he did not.

Q. Did he tell you what he knew about the case?

A. No, he did not.

Q. Did you ask him what he knew about the case?

A. No, I didn't ask him any more questions.

Q. Did you discuss the case at all?

A. No, no more. I drove away.

Q. How long after this conversation took place did you report it to Mr. J. B. Smith?

A. I think it was the next day.

Then, at the direction of Mr. Smith I reported this conversation also to Mr. Knight and to Mr. Moore. I was only in Mr. Knight's office that once. I have been in Mr. Moore's office several times, but not in connection with this case; it was on private business of my own. I was driving Mr. Moore around in my buggy. I have done that probably three times. I call my conference with Mr. Moore on the conversation with Eddie Powers, and also, my visits to Mr. Moore to drive him around, private business. I don't know what business he was on when I drove him. I have driven him probably three times. I went there on several occasions after the Powers visit, on private business. That was when he told me to drive him. I claim that as my own private business. I have seen Mr. Moore on California Street, and he asked me to drive him and I did, and then on another occasion I seen him and drove him down to the Ferry

(Testimony of Michael Carroll.)

building. I have the privilege of using a Western Fuel buggy when I want to. I was at Mr. Moore's office yesterday. I have not been looking after witnesses in this case.

(At this point the attorneys for the defendants offered in evidence, there being no objection by the attorneys for the Government, a table of bill-of-lading weights and out-turn weights of Wellington coal. It was marked Defendants' Exhibit "RR," and is in words and figures as follows, to wit:)

[1904—1838]

[Defendant's Exhibit "RR"—Statement Showing
Shorts and Overs in Cargoes of Coal Imported
by Western Fuel Company.]

STATEMENT SHOWING SHORTS AND OVERS IN COMPLETE CAR-
GOES OF COAL IMPORTED BY THE WESTERN FUEL COM-
PANY DURING THE YEARS 1904 TO 1912, INCLUSIVE, AS
WEIGHED IN ENTIRETY ON SCALES IN SAN FRANCISCO AND
OAKLAND, CALIFORNIA:

STEAMER "WELLINGTON."

Arrival Date of Vessel.		Entry No.	WEIGHED IN SAN FRANCISCO.					
			Invoice Weight Tons.	Ascertained Weight Tons.	Short		Over	
				Lbs.	Tons.	Lbs.	Tons.	Lbs.
1905.								
Jan.	1.	25	2277	2264	1510	12	730	
May	28.	6557	2387	2308	300	78	1940	
June	9.	7082	2250	2183	1640	66	600	
July	16.	8683	2230	2249	1900			19 1900
1907.								
Mar.	31.	4854	2318	2293	1500	24	740	
Apr.	22.	6090	2358	2286	560	71	1680	
1909.								
Feb.	5.	1911	2367	2296	2180	70	60	
"	24.	2668	2260	2203	1230	56	1010	
June	21.	8010	2421	2376	970	44	1270	
Nov.	17.	14962	2307	2207	1310	99	930	
Dec.	5.	15837	2307	2235	1860	71	380	
1912.								
Feb.	9.	2463	2507	2305	440	201	1800	
"	21.	3081	2353	2171	440	181	1800	
Mar.	10.	4229	2257	2264	1680			7 1680
Apr.	4.	6028	2243	2244	1780			1 1780
May	12.	8181	2359	2326	1970	32	270	
"	22.	8853	2434	2329	1720	104	520	
June	15.	10298	2415	2306	1270	108	970	
"	29.	11002	2371	2348	2150	22	90	
July	11.	11822	2415	2348	2090	66	150	
"	23.	12398	2372	2342	470	29	1770	
Aug.	8.	13518	2371	2364	1560	6	680	
Oct.	10.	17852	2227	2297	1210			70 1210
"	31.	19335	2246	2264	1530			18 1530
Nov.	27.	21429	2248	2246	1850	1	390	
Dec.	11.	22150	2228	2252	1560			24 1560
"	29.	23400	2228	2235	1900			7 1900
Totals			62756	61558	500	1348	2100	151 360
[1905—1839]								

WEIGHED IN OAKLAND.

Arrival			Invoice		Ascertained					
Date of Vessel.		Entry No.	Weight in Tons.	Weight Tons.	Lbs.	Short Tons.	Lbs.	Over Tons.	Lbs.	
1904.										
Oct. 18.	S. F.	13271	2141	2196	2040			55	2040	
Nov. 1.	Oak.	52	2152	2195	10			43	10	
Dec. 18.	"	67	2175	2254	1870			79	1870	
1905.										
Jan. 13.	"	3	2175	2217	1775			42	1775	
" 28.	"	8	(1112 1105)	1126 1129	1800 1310			14 24	1800 1310	
Feb. 13.	"	11	2200	2234	40			34	40	
Mar. 11.	"	14	(1153 1100)	1182 1116	870 90			29 16	870 90	
" 29.	"	16	(1153 1143)	1162 1163	1340 470			9 20	1340 470	
Apr. 12.	"	17	2406	2464	1960			58	1960	
May 1.	"	21	2220	2311	1790			91	1790	
" 13.	"	22	2224	2286	1920			62	1920	
June 24.	"	28	2330	2246	715			16	715	
Aug. 18.	"	33	2230	2290	10			60	10	
Sep. 1.	"	35	2250	2272	2110			22	2110	
" 24.	"	39	2260	2279	1120			19	1120	
Nov. 7.	"	46	2208	2249	1990			41	1990	
" 22.	"	49	2238	2235	1430	2	810			
Dec. 6.	"	51	2297	2245	900	51	1340			
" 19.	"	54	2187	2197	1780			10	1780	
1906.										
Jan. 4.		1	2196	2226	1080			30	1080	
" 22.		4	2209	2229	920			20	920	
Feb. 6.	Oak.	5	2206	2212	1630			6	1630	
" 19.	"	9	2238	2253	1800			15	1800	
Mar. 7.	"	12	2198	2267	1610			69	1610	
" 21.	"	13	2248	2254	1470			6	1470	
Apr. 5.	"	17	2210	2268	2160			58	2160	
" 19.	"	20	2265	2248	220	16	2020			
June 22.	"	42	2253	2276	1660			23	1660	
July 13.	"	72	2270	2284	860			14	860	
1907.										
Mar. 2.	S. F.	3552	2313	2265	1670	47	570			
Sep.			2310	2247	1390	62	850			
Nov. 9.	"	17022	2275	2272	2230	2	10			
Dec. .	Oak.	296	2269	2232	1160	36	1080			
1908.										
Nov.	Oak.	122	2348	2281	1950	66	290			
Dec. 11.	S. F.	16678	2272	2228	280	43	1960			
" 27.	Oak.	140	2264	2226	1250	37	990			
1909.										
Mar. 25.	Oak.	26	2284	2348	800			64	800	
Sep. 24.	"	65	2339	2311	100	27	2140			
Oct. 11.	"	79	2329	2320	1330	8	910			
" 27.	"	95	2313	2301	1800	11	440			
1912.										
Mar. 22.	S. F.	5070	2295	2313	490			18	490	
Apr. 16.	"	6582	2331	2329	990	1	1250			
June 3.	"	9475	2345	2310	2150	34	90			
Sep. 23.	"	16480	2304	2317	1240			13	1240	
Totals										
[1906—1840]			99243	99891	1340	449	1310	1098	410	

[Testimony of James B. Smith, for Defendants.]

JAMES B. SMITH, one of the defendants, having taken the witness-stand and having been sworn, testified as follows:

Direct Examination by Mr. STANLEY MOORE.

I am one of the defendants in this case. I am the active Vice-president of the Western Fuel Company and might be termed the General Manager. My duties include general office duties, the buying and selling of coal and the general management in detail of the business. I have occupied this position with the company since its incorporation, December 15, 1902. Prior to that time, and since February 15, 1882, I was connected with the firm of J. Macdonough & Company, with the late Captain J. C. Wilson, as the active head. On the death of Captain Wilson I became the head of that business, remaining in that position until the late John L. Howard and myself formed the Western Fuel Company, taking into it the John Rosenfeld Sons, the Howard Company and J. C. Wilson & Company, Incorporated. We assumed the good will and all the contracts of the John Rosenfeld Sons Company. They retired absolutely from the business. They had been managing owners, as well as the agents in San Francisco, of the mines up in Vancouver, and they were in the custom of coaling the liners of the Pacific Mail Steamship Company, American Hawaiian Steamship Company, etc. That coaling was done primarily through barges as it is to-day. [1907—1841]

(Testimony of James B. Smith.)

All coal coming from Vancouver is passed over the screens before being loaded into the ships. After the coal has been loaded into the vessels at Vancouver, unloaded here in San Francisco, shoveled into tubs and hoppers, discharged into cars, and finally into bunkers, it would contain, if house coal, about 15 to 25% screenings, and, if steam coal, from 30 to 40% screenings. All coal delivered to the trade here is subjected to a screening. The screenings secured thereby find their way eventually for the most part into the barges for steam purposes. The percentage of screenings in the best steam coal runs from 60 to 75%, and I consider, for instance, Pocahontas and Cardiff and New River coal as belonging to the best class of steam coal. The Pocahontas and New River coal came from West Virginia. The Cardiff coal to which I refer is that mentioned by the witness, Mr. Richards, in connection with the Corey Brothers Company.

When I am in business I never miss a daily trip to the waterfront. I go there to keep myself informed as to what is going on around the bunkers and the plant in general, and to discuss with my subordinates the general condition of the business from day to day. I think I could safely say that prior to this trial hardly a day elapsed without my going on top of the bunkers. Every cargo of coal discharged at our bunkers is visited by me. I go aboard the ships to see the condition and the character of the coal we are buying and paying for.

(Testimony of James B. Smith.)

I have been in the coal business 32 years. I do not call myself an expert on coal; I am merely a practical, ordinary coal man. I know as much about the causes for the increase in the weight of coal as would naturally be known to a man of my practical experience over many years in the coal business, handling a variable commodity. As long as I have had any knowledge of that business overruns have been found to occur in its conduct. The time when one has opportunity to find out about overruns is naturally at the taking of stock for [1908—1842] the ascertainment of conditions as to the delivery and receipt of coal, and as to the coal on hand. In taking stock for any period, the elements and factors to be considered would be the amount of coal on hand at the beginning of the period, the quantity of coal as shown by the receipts during that period, the quantity of coal shown by the deliveries during the same period, and the quantity of coal actually on hand at the conclusion thereof. These times of taking stocks are the only times when I would have occasion to note such overruns as there might be. We adjust our stocks at least once a year. It sometimes occurs that we do so more often, but I would regard one adjustment per year as essential. According to our adjustments, the overrun or excess would be from $2\frac{1}{2}$ to 3%. To the best of my recollection, that has been our normal overrun in the Western Fuel Company since its incorporation. In answer to the question whether that overrun was regarded by me as in the nature of a surprise, I would say that consider-

(Testimony of James B. Smith.)

ing the character of the commodity and the conditions under which we receive and sell coal I considered the fact that we had such a small percentage of overrun a normal result in the general transaction and character of our business. If my memory serves me right, the percentage of overrun that the Western Fuel Company had was not any larger than that which I experienced in the previous coal concerns with which I was connected. I said a moment ago that I considered the method by which we received the coal as one element to be taken into account in connection with the overrun; I refer in that statement to the rules and regulations of the Treasury Department of the United States under which coal is weighed with a rising beam. Under such a system there must be an increase in weight given to the recipient of the coal. When [1909—1843] the Western Fuel Company sells and delivers coal to its customers it endeavors to give them the weight which they pay for, but we weigh the coal out on an even, rather than a rising, beam. It would be purely guesswork on my part to say what difference, if any, there was between the rising-beam, and the evenly balanced beam, because I have seen weighers weigh so different that it would be hard to say except merely to give my opinion. I have on numerous occasions seen the rising-beam as it is actually operated in pursuance of the custom-house regulations. Taking the beam by and large and considering the degree of rapidity with which I have seen it rise, and considering, further, the different degrees of rapidity with

(Testimony of James B. Smith.)

which I have seen it rise, and looking at the whole situation with a view to an average, I would say, roughly, that the difference in weight secured by the custom-house method of the rising-beam and by our method of the even beam, would range from $\frac{1}{2}$ to $\frac{3}{4}$ of one per cent. I have also known of some natural causes that might account for the overage heretofore referred to by me of from $2\frac{1}{2}$ to 3%. These natural causes have to do with the absorption and retention of moisture. I have in mind the absorption of the commodity and the atmospheric conditions to which the coal is subjected here, both in the rainy and the dry seasons. I have known of the increase in the weight of coal by the falling of water upon it since I first took charge of the general handling of coal some 26 or 27 years ago. So far as oxidation is concerned, I have seen some reference to it in the pamphlets issued by the Bureau of Mines, but I never paid any particular attention to that aspect of the matter. Of course, I have had a good deal of experience in the heating in piles of coal. I have witnessed that process. In the old days when we stored coal in piles in the yard (and we were particularly apt to do that before the bunkers were erected) we used to drive down galvanized or iron pipes into different parts of the piles and have a man pull those pipes up in the morning and feel with his hands to see whether the interior [1910—1844] of the piles were showing any heat. As the result of experience and the reading of pamphlets and general literature regarding the storage of coal, we even-

(Testimony of James B. Smith.)

tually learned that we could accomplish this result by putting down perforated pipes 4 or 5 inches in circumference and dropping a thermometer down into them, thereby ascertaining the exact condition of the interior of the piles as to heat. There is no question at all but that if a large quantity of coal is piled up, a heating process is liable to set in. When we discovered that a pile was heating, there were only two things to do: either remove the pile or saturate it thoroughly with water. We have on occasions adopted both of those courses. I have, in my experience, known of coal piles to actually catch fire before we got the water on them. I think I have seen coal piles break into flames once or twice during my connection with the Western Fuel Company, and several times during my earlier coal career. As a general thing, though, we have flooded the pile before that would occur. The method of flooding is to put a hose through the different parts of the pile until it would become so thoroughly saturated that the water would drain out from the bottom.

I have said heretofore that we ascertain our overrun at the time of taking stock. The barge business is not segregated from the rest of the business in respect to this determination of overrun. No computation was ever made on the barge overrun, or the percentage of barge overrun, prior to the investigation conducted by Price, Waterhouse & Company, accountants, and submitted here in this trial, showing an average barge overrun of 4.8%. I would account for this barge overage of 4.8%, covering the

(Testimony of James B. Smith.)

period of 1904 to 1912, by the method of weighing, by [1911—1845] the fact that some of the coal goes into the barges without being weighed, and by the moisture content of the coal. There is no question but that that coal will be increased in weight whether summer or winter if water be added to it. I mentioned the methods of weighing: I refer to the weighing out of coal from incoming vessels as well as the weighing out of coal from barges into the liners, this weighing being on the average system. By absorption of moisture, I refer both to the placing of water on the coal by artificial means and naturally from the atmosphere. The average system of weighing cannot be an exact or accurate system.

Mr. Mills, as well as all the other employees, send reports to my office. I receive reports from every department of the business. From six to eight such reports are turned into my office every day. I do not necessarily look at Mr. Mills' reports daily. I know that they are there if I wish to refer to them at any time. I have certainly, in looking at them, observed overruns in connection with the barges. The overruns showed upon those reports certainly did not excite any surprise or suspicion in my mind, because, when we first commenced the business of the Western Fuel Company, Mr. Mills explained the method in which they handled the coal in the barge department. I also knew that the weights going into the barges were not accurate. I knew that the barges were merely floating vessels used for the storage of coal and, therefore, we were not particularly interested in

(Testimony of James B. Smith.)

keeping accurate weights of the coal laden upon the barges. All we desired was the approximate weights, because we knew that finally the coal in the barges would find a weight in connection with its discharge. It could not really have made any particular difference to us whether the coal was weighed at all when [1912—1846] it went into the barges. All that coal was the property of the Western Fuel Company. Nobody else had any interest in it. It was not any more important to us to have accurate weights of that coal than it would be to have accurate weights of the coal in a particular bunker or yard belonging to the corporation. The only thing, therefore, that really indicated the overrun to me was the annual stock-taking account.

Our so-called "Donation Account" is one kept for coal that is given to charitable institutions, to people in distress, to people we feel exchange courtesies with the company to whom we make no charge for coal furnished. I know all about the giving of coal to Mr. McCarthy of the Pacific Mail Company, whose name appears in this donation account. He is an assistant in the Treasurer's Department, and has to do with the paying of the Western Fuel Company's coal bills. With respect to Mr. Thompson whose name also appears in that account, I do not know him personally, but I know that he is connected with the Pacific Mail Company, and that his duties are to pass upon and audit coal bills. Both of those gentlemen therefore have duties connected with the time of issuing vouchers and the time within which money can

(Testimony of James B. Smith.)

be collected for bills. The reason that I allowed these gentlemen to have an occasional ton of coal was to expedite the payment of our coal bills. They handle and pass bills for payment. In a large corporation like the Pacific Mail Steamship Company, kick

our bills might (lie) around for a month before we could get our pay, and, therefore, it is an accommodation to us that these gentlemen hurry our bills along, and I feel that in sending them an occasional ton of coal I am simply exchanging courtesies with them. There are also a great many people in our donation account with whom the Western Fuel Company had no business dealings at all. It [1913—1847] is a fact that Vice-President Schwerin of the Pacific Mail Company has, since the fire of 1906, received coal from us from time to time for his personal use, for which he has not paid any money. To the best of my recollection, Mr. Schwerin first received coal without paying for it shortly after April, 1906. Prior to that time he sent his personal check for coal. The change came about in this way: shortly after the fire and during the confusion of things, Mr. Schwerin's bills for coal were placed on my desk, and I made up my mind that I was not going to allow him to pay for his coal for his household use. Many times he asked me to send him a bill and I told him I would, but I never did. I thought it was rather a small thing to send a man a bill for a ton or two of coal when we were doing a large business together. I regarded this matter simply as an exchange of courtesies between us. I made up my mind that despite

(Testimony of James B. Smith.)

the fact that he asked me to send him a bill that I would not let him pay for his coal, and I took steps accordingly.

I have given instructions with reference to the conduct of the business and the delivery of coal down on the waterfront, and those instructions were never to make delivery of coal to any vessels unless they had a representative present to check weights and sign for the receipt of the coal. Those instructions were given to Mr. Mills.

I am acquainted with Mr. Edwin Powers. I knew him to say "Good morning" around the bunkers for quite a few years, and, during Mr. Mills' absence on one or two occasions prior to 1911, he looked after a portion of Mr. Mills' work and reported to me. I am not acquainted with Mr. David G. Powers whom the evidence shows took the place of Mr. Edwin Powers on and after July 1, 1911, for about five and one-half months. Prior to this trial I never [1914—1848] spoke to David G. Powers, as I only saw him incidentally once or twice down on the waterfront. So far as Edward Powers is concerned, the only times I had any regular conversations with him were in 1911 when he was, as I have said, taking Mr. Mills' place. As I understand it, the Powers boys were employed around in different capacities, as stevedores, hatch-tenders, and then foremen of barges. As to my opinion of Edward Powers, I would say that I personally liked him very much. He had a nice personality, he seemed to be a clean-cut young fellow and I naturally took a liking to him the

(Testimony of James B. Smith.)

same as I have to a number of our employees. I saw him around there and I thought he had the makings of good timber in him for some future time in the concern; in fact, I was rather counting on him as the man who would succeed Mr. Mills in case anything should happen to the latter. I am sorry to say, however, that when he was put in Mr. Mills' place in 1911 during Mr. Mills' absence on account of illness, he did not measure up to his opportunities, and, in fact, was away for a week or ten days altogether, neglecting his duties. When Mr. Mills came back, he telephoned me that he would have to let Edward Powers out and that he was going to put in his place his younger brother, Dave. I presume it was Mr. Mills who employed Mr. Edward Powers in the first place, and I am positive that it was Mr. Mills who employed Dave Powers to succeed Edward. When Mr. Dave Powers went out in December, 1911, I told Mr. Mills that I was going to select a man for that place and be responsible for his conduct and I had Mr. Mullan appointed to succeed Dave Powers who had gotten into trouble. I had known Mr. Mullan I should say for 25 or 27 years.

In answer to the question what I did at the time of the discharge of Mr. Dave Powers with respect to the trimming business in which Mr. Mills and the father of David Powers had been theretofore engaged, I would have to give a brief resume of the arrangements we had in regard to the trimming of our vessels. [1915—1849] Mr. Patrick Powers, the father of the Powers boys, and Mr. Mills used

(Testimony of James B. Smith.)

to be associated in the trimming business together. When the Western Fuel Company first took over the Rosenfeld business, Mr. Mills told me that he and Mr. Powers were engaged in this trimming business on outside steamers, and I told Mr. Mills that they would be allowed to do our trimming if it would not interfere with his duties as an employee of the Western Fuel Company. It turned out, however, that the same men who trimmed the coal also handled the freight on the steamers, and, consequently, our barges would often be held up and the men on the barges kept idle. I therefore discussed the trimming matter again with Mr. Mills, and made an arrangement whereby he and Mr. Patrick Powers were to trim for 25 cents a ton, the Western Fuel Company to pay them and to charge the same amount to the Pacific Mail Steamship Company, this arrangement being agreeable to the latter company. Then, when David Powers got into trouble, I said to Mr. Mills that all the Powers family would have to go, Edward Powers and Dave Powers having both neglected their duties, I was afraid to trust the Powerses any more. Consequently, I said that the firm of Powers and Mills would have to come to an end, and that, so far as the Western Fuel Company was concerned, we would do our own trimming. I therefore placed Mr. Mullan in charge of the barges and of the trimming with the title of Assistant Superintendent or Barge Foreman.

It was in July, 1904, that the Western Fuel Company first came into possession of the Folsom Street

(Testimony of James B. Smith.)

bunkers. Those bunkers were then some ten or twelve years old and had never been repaired or overhauled. They were consequently somewhat dilapidated and run down. We therefore spent something like \$80,000 or \$90,000 in thoroughly remodeling the bunkers and installing an offshore-bunker plant, the Dunsmuirs who used the bunkers before having [1916—1850] very little offshore business, their transactions having been confined principally to trade with the retail dealers. In other words, the alteration in the decking or flooring upon one part of the bunkers was simply a portion of the general remodeling of the plant there. The old outfit was practically rebuilt.

The United States Government, so far as the weighing of coal was concerned, did not allow any reduction in the duty on account of water in the coal or increase in the moisture content of the coal, and this was true both in the weighing of imported coal out of a ship and of the discharge of coal from a barge into a liner. The moisture content of the coal, or the amount of water present in it, at any time was given no consideration whatever by the Government in so far as the payment of duties or drawbacks were concerned.

Our practice or custom of making certain presents to some of the employees of the Pacific Mail Steamship Company at Christmas time began with the first Christmas after the incorporation of the Western Fuel Company. These presents amounted to about \$125 or \$150 a year. Mr. Rosenfeld told me that it

(Testimony of James B. Smith.)

had been the practice of his company to give a gratuity to the employees down on the dock for many little courtesies extended to the company, and I wished to continue to operate the business as a whole along the lines of John Rosenfeld Sons.

Putting screenings into the coal that went into the barges and from the barges into the liners of the Pacific Mail Steamship Company was not in violation of any contract or understanding that we had with respect to the kind of coal that was to be furnished to the Pacific Mail Steamship Company for fuel purposes. It is the practice of the firemen on the liners [1917—1851] to break up all the coal into small particles before it is burned, and subject it to a wetting if it is not moist enough before, so that when it is shoveled into the furnace it will produce a thin fire on the grate bars, thereby giving the best results of combustion.

I recall that the methods of compensating the custom-house weighers on the waterfront for overtime was changed at various periods, but I do not remember the actual details. We always recognized overtime on the waterfront by payment. If it appears by the evidence that at one time Mr. Hopkins got the money from Mr. Story, the Paymaster of the Western Fuel Company, and that Mr. Mayer then disbursed it to the custom-house weighers, I certainly authorized that arrangement, although I do not recall it now. I assume the responsibility for all my subordinates in the transaction and result of the business in general of the Western Fuel Company.

(Testimony of James B. Smith.)

I have never entered into any conspiracy with any of my subordinates or anyone else to defraud the United States Government out of the payment of duties either upon importations or drawbacks, or by the manipulations of the scales, or otherwise. So far as the scales were concerned, they were repaired and cared for by a recognized authority on scales, generally Fairbanks-Morse & Company. Minor repairs have been done by Bill, the blacksmith.

**[Testimony of C. P. Caruthers, for Defendants
(Recalled—Cross-examination).]**

C. P. CARUTHERS, a witness recalled by the United States for further cross-examination, testified as follows:

Cross-examination by Mr. ROCHE.

I have gone over with Mr. Costello, representing the Government, [1918—1852] the figures shown by the tabulation introduced in evidence the other day and have found some figures which were not taken into consideration by me in making the tabulation. I have since taken them into consideration for the purposes of amendment. I have, of course, made myself familiar in the first place with the methods pursued by the defendant Mills, in keeping these dock books or diaries. In a number of instances in those books the word "overages" appears. I know that there are cases, but I don't think they would number more than half a dozen in all the books, where the word "surplus" appears, and opposite that word a certain amount of coal designated by tons and pounds.

(Testimony of C. P. Caruthers.)

Q. * * * for instance. I call your attention to an item appearing under date of May 17, 1905, a charge to the barge "Ludlow," account of "Edith" surplus 80 tons, 1810 lbs.; now, according to this blotter, the 80 tons, 1810 lbs. of coal were subsequently and on that date discharged into the "Siberia"; that is correct, is it not? A. Yes, sir.

Q. How did you treat that surplus in preparing the account which has been introduced in evidence, as a shortage or an overage?

A. That surplus shows as coming from the "Edith" into the barge, and on that account is included in coal-in column; this shows as going to the "Siberia" and on that account is taken in the coal-out column. There is no overage or shortage shown.

Q. Now, is it not a fact that according to these books the barge "Ludlow" cleared on the 8th day of May, 1905, at which time there was an overage shown by these books of 84 tons, 1970 lbs.; is not that correct? A. Yes.

Q. It is also a fact, is it not, Mr. Caruthers, that before that overage appeared the barge had from time to time received [1919—1853] coal from the "Edith"; that is also true, is it not? A. Yes.

Q. Now, I will ask you to look at this diary between the dates of May 8, 1905, and the date upon which that surplus appears and to state whether or not you can find that that barge took on any coal at any time from the vessel "Edith" (addressing counsel) I want to say Mr. Olney, that I have just ascertained that these surplus figures were entirely

(Testimony of C. P. Caruthers.)

omitted by both Mr. Tidwell and Mr. Costello in preparing Table C.

Mr. OLNEY.—Yes, they omitted a great number of balances as well.

Mr. ROCHE.—It would increase the overages if those balances had been included.

Mr. STANLEY MOORE.—Well, let us not have any question, Mr. Roche, about what that overage really is; let us not leave it in doubt at all.

A. I cannot see where the “Edith,” as shown from the delivery statements of the “Edith,” where they ever delivered any coal from the “Ludlow.”

Mr. ROCHE.—Q. You mean after that date?

A. No, before that date.

Q. Let me show you. Let me call your attention to this: Take May 6th. The “Ludlow” received out of the vessel “Edith” 621 tons, did she not?

A. It says so here, but it does not here.

Q. But this book does show that she did take the coal? A. Yes, sir.

Q. My question to you is, can you point to any place contained in this diary after May 8th 1905, wherein according to these books the “Ludlow” cleared and the date upon which this surplus [1920—1854] appears showing that any part of the cargo of the “Edith” was discharged upon the “Ludlow”?

A. No.

Q. Now, assuming then that these books are correct, it would appear from these books, Mr. Caruthers, would it not, that on the 8th day of May, 1905, the “Ludlow” discharged 84 tons, 1970 lbs. more

(Testimony of C. P. Caruthers.)

coal than had been checked into her, and that after that overage appeared, she subsequently discharged the surplus coal of 80 tons, 1810 lbs.?

A. These are very similar amounts.

Q. Is not that correct?

A. I say they are similar amounts; they are not the same.

Q. Well, assuming that these accounts and these amounts are correct, then the actual overage of this barge would be 84 tons, 1970 lbs., plus 80 tons, 1810 lbs.; is not that correct?

A. That does not have the appearance of that to me.

Q. Well, will you kindly indicate to me that part of this record or this book which shows that the "Ludlow" took on any coal at any time or from any place after the 8th day of May, 1905, and prior to the 17th day of May, 1905?

* * * * *

Mr. STANLEY MOORE.—Mr. Roche, what per cent do your representatives now claim the barge overrun to be?

* * * * *

Mr. ROCHE.—We claim it is 5.18 per cent.

* * * * *

Mr. ROCHE.—Q. Now, Mr. Caruthers, will you answer the question? Let me recast the question. According to this diary, on the 8th day of May, 1905, that barge cleared with an overage of 84 tons, 1970 lbs.?

A. Yes, sir.

Q. In other words, assuming these records to be

(Testimony of C. P. Caruthers.)

correct, there [1921—1855] was taken off of that barge 84 tons, 1970 lbs. in excess of the quantity of coal checked into her? A. Yes, sir.

Q. Now, I will ask you if it it not a fact according to these records, that between the 8th day of May, 1905, when the overage appears, and the 17th day of May, 1905, no coal of any kind was checked into that barge? A. No, I don't see any.

Q. Now then, assuming these books to be correct, is it not a fact that instead of your table showing that the "Ludlow" received 80 tons, 1810 lbs., and discharged 80 tons, 1810 lbs., that that 80 tons, 1810 lbs. ought to be added to the overage for the purpose of finding out the total overage, that that ought to be added to the other overage for the purpose of finding out the total overage; is not that correct?

A. I could not say.

Q. You are an accountant, are you not, Mr. Caruthers? A. I am.

Q. Is there any other explanation for that item?

A. There is.

Q. What explanation?

A. That it might be that that surplus came from the "Edith"; there was a surplus of coal that came from the "Edith" into the "Ludlow," and that is the way we have treated it.

Q. Will you point out in this book any entry showing that any coal came from the "Edith" upon the "Ludlow" after the 8th day of May, 1905?

A. No, but I cannot point out where the 621 tons came from the "Edith."

(Testimony of C. P. Caruthers.)

Q. You say you cannot point it out?

A. No, I don't see that there.

The COURT.—Does anybody dispute Mr. Mills' testimony that just as soon as there was any more coal checked out of the barge [1922—1856] than had been checked into it, that was marked as an overage, no matter how much was left in the barge?

Mr. ROCHE.—No, your Honor. Mr. Mills did testify that these surplus statements related to the coal that was taken out of the barge after the overage had been computed, and that is just what I was getting at, notwithstanding Mr. Moore's statement to the contrary, that the overage ought to be larger than the overage given by the witness on the stand.

Mr. OLNEY.—That can be made clear by just one question, and I will ask the question at this point: Q. If you take this entry of surplus, Mr. Caruthers, which appears as a delivery by the "Ludlow" to the "Siberia" of 80 tons, 1810 lbs., did that delivery of so called surplus coal into the "Siberia" go into your statement of the coal-out? A. Yes.

The COURT.—Q. But it really went in as coal-in too, didn't it? A. Yes.

Mr. OLNEY.—Q. Did it also go in as coal-in?

A. Yes, sir.

Mr. ROCHE.—Q. And to that extent your overage is reduced, is it not?

A. I don't think so; I would not say so.

Q. If, as a matter of fact, the 80 tons, 1810 lbs., represent the additional overage; that is, an overage in addition to the overage of 84 tons, 1970 lbs., it is

(Testimony of C. P. Caruthers.)

a fact, is it not, that your figures under-estimate the overage?

A. If that was an additional overage, yes, sir.

Q. In other words, if between those two dates, that quantity of coal was not received by the barge from the "Edith" then it would be an additional overage; is not that correct? A. Yes, sir.

Q. It is also a fact, is it not, Mr. Caruthers, that there are several instances of that character in these books? [1923—1857]

A. There are a few, yes, sir.

* * * * *

Q. Did you treat all the surpluses you found in the same manner? A. I believe so.

Q. That is to say, wherever you found the surplus you credited the barge with that amount?

A. It appears in the coal-in and coal-out?

Q. In both? A. Yes, sir.

Q. So it is a standoff? A. Yes.

Mr. ROCHE.—Q. I want to show you, Mr. Caruthers, for your information, under date of April 24, 1905, while the "Edith" was still discharging, there is charged against the "Ludlow," is there not, the 621 tons, 1690 lbs.?

A. That is the same thing.

Q. Those are the same figures, are they not?

A. They are the same figures, yes.

Q. And that is correct, is it not? A. Yes.

Q. And that shows the date upon which that coal was checked into the barge? A. Yes.

Q. It is also a fact, is it not, Mr. Caruthers, that in

(Testimony of C. P. Caruthers.)

a number of instances in this diary or in these diaries, there appears to have been coal discharged we will say from the offshore bunker at Folsom Street into a barge and taken by the barge over to some of the other bunkers of the Western Fuel Company and discharged into those bunkers?

A. There are one or two; there are some cases.

Q. You say one or two?

A. I haven't a list of them.

Q. Isn't it a fact that there are 20 or 30 instances of that kind? A. I don't really know.

Q. So far as the books are concerned, Mr. Caruthers, those [1924—1858] items do not appear to have resulted in any sale of coal; in other words, it was a mere transfer of coal from one part of the Western Fuel Company plant to another part of the plant? A. Yes, sir.

Q. That is correct, is it not? A. Yes, sir.

Q. Have you taken those figures into consideration in determining the general overage? A. Yes.

Q. In each instance—is not that correct?

A. Yes.

Q. And it is also a fact, is it not, Mr. Caruthers, that in those instances the books would show that the quantity of coal checked into a barge would tally with the quantity of coal checked out? A. Yes.

Q. Now, is it not also true, Mr. Caruthers, that if those figures were entirely eliminated from your tabulation, that the general percentages of overage would be increased? A. Yes.

Q. That is true too, is it? A. Yes.

(Testimony of C. P. Caruthers.)

Q. And it is also true, Mr. Caruthers, that in each instance where items of that character appear in the diary you have treated them as so much coal received and so much coal checked out? A. Yes.

Q. And it is also true, is it not, Mr. Caruthers, that that course has been pursued by you where the books show, for instance, that 1,000 tons have been transferred from one place to another?

A. This coal-in column is supposed to include all coal that has been delivered into the barges.

* * * * *

Mr. ROCHE.—Q. During the noon recess, Mr. Caruthers, did you make an examination of your data for the purpose of ascertaining the quantity of coal which is represented by the surplus items? [1925—1859]

A. Yes.

Q. What is that quantity?

A. 760 tons, 1829 lbs.

Q. That quantity of coal would have to be added to the overage account; is that correct, as shown by your tabulation?

A. I believe so, if the overage is as stated before lunch.

Q. That is, assuming that that surplus represented coal which still remained undischarged upon the barge, as testified to by the defendant Mills, it would have to be added to your overage account?

A. Yes, sir.

Q. When court adjourned, I was examining you concerning certain portions of cargoes of coal trans-

(Testimony of C. P. Caruthers.)

ferred from, we will say, the bunkers in San Francisco to the bunkers in Oakland, and from one bunker to another bunker; it is a fact, is it not, that in your computations, you have included those computations, have you not? A. Yes, sir.

Q. And it is also a fact, is it not, that if those cargoes thus transferred from one barge to another, or from one bunker to another, would be eliminated, that to some extent the percentage of overage would be proportionately increased?

A. Slightly, yes, sir.

Q. In examining the books kept by the defendant Mills, for the purpose of making these computations to which you have testified, you have also run across, also, have you not, items indicating balances of coal remaining undischarged? A. Yes, sir.

Q. And the books would fail to show what had ultimately become of that portion of the cargo; is that correct? A. Yes, sir.

Q. In other words, taking for the purposes of illustration one of the barges, you recall, do you not, that one of those barges, or, rather, that the books disclose that there were 760 tons still on hand in a barge; do you recall that item?

A. No. [1926—1860]

Q. Leaving that subject for just a moment, until I get the reference, it is also a fact, is it not, Mr. Caruthers, that during your examination of the books kept by the defendant, Mills, you ran across items showing, for instance, that a quantity of coal would be discharged from the offshore bunker, or

(Testimony of C. P. Caruthers.)

from a ship to a barge, and afterward transferred from that barge to another barge, and ultimately delivered or discharged from such barge?

A. I think the first case I saw of that was during this last recess.

Q. That is, during the last recess of the court, Mr. Tidwell directed your attention, did he not, to one or two of those items? A. Yes, sir, two items.

Q. That was just before two o'clock, wasn't it?

A. Yes.

Q. Will you just indicate to the jury, please, how you treated those items?

A. Yes; a certain amount of coal was delivered into one barge, that barge later transferred it to another barge, and we failed to notice that it had been transferred to another barge, instead of to another ship.

Q. In other words, in this tabulation, you charged it with the coal twice; that is about the situation, is it not?

A. It is charged with the coal twice, to the extent of about a thousand tons.

Q. To the extent of about a thousand tons?

A. Yes, sir.

Q. That is, your attention was directed to one item, which aggregated or which exceeded 1000 tons?

A. Yes, two items.

Q. Are you at the present time aware as to how many items of that character appear in these books?

A. No.

Q. And, of course, to the extent to which those

(Testimony of C. P. Caruthers.)

items do appear in these books, your general percentage would be increased?

A. Yes. [1927—1861]

Q. Directing your attention for a moment to these balances to which I referred a moment ago, I call your attention to July 29, 1904, for the purposes of illustration, and ask you to look at the last entry appearing under that date, balance, 952 tons, 1063 pounds; that item represents, does it not, as understood by you, that there was on the "Comanche" at the conclusion of that day's work, a balance of 952 tons, 1063 pounds?

A. That on account of being crossed was treated by us as a like amount having gone out of the barge as what went into it.

Q. Then, so far as this particular item was concerned, your calculations, then, included a discharge of 952 tons, 1063 pounds; is that right?

A. No, it included a discharge of 1809 tons, 2168 pounds.

Q. Well, in other words, you made up, then, in your tabulations, for these 952 tons; is that correct?

A. We included that as having been discharged.

Q. Without being able, of course, to ascertain whether there was an overage or a shortage?

A. Absolutely.

Q. It is a fact, however, is it not, that that is the only item of its kind that was thus treated by you; in other words, in all places where the balance would be found by you in these books, you treated it as a shortage?

(Testimony of C. P. Caruthers.)

A. I think there is probably one other that I remember of; I am not certain of it now. It is on the 29th of December, 1911.

Q. On the 29th of December, 1911

A. Yes. I find that that is slightly different.

Q. You refer to the "Wellington," do you?

A. Yes. That other one is the only one I know of now.

Q. Taking the item to which you just called my attention, of date Friday, December 29, 1911, the books disclose, do they not, [1928—1862] that at the close of that day's work there was a balance of 21 tons, 1381 pounds left upon the barge, referring to the barge "Wellington"? A. Yes, sir.

Q. Now, the book does not disclose what became of that tonnage: Is that correct?

A. There is some further information on that, in 1912, but that, even, does not disclose it.

Q. It does not explain the item? A. No.

Q. Now, is it not a fact that as to this particular item, at least, you treated it as a shortage?

A. Yes, sir.

Q. In other words, that there was a shortage of that amount of coal, instead of an overage, or instead of balancing it? A. Yes, sir.

Q. Now, it is also a fact, is it not, that in several other instances, you gave the same treatment to the same character of items?

A. I think in almost every other case, it is shown in my statement as a balance left over, which has the same effect.

(Testimony of C. P. Caruthers.)

Q. Now, it is also a fact, is it not, that if those items had not been thus treated by you as a shortage, that that, too, would increase, to some slight extent, at least, the general overage? A. Yes, sir.

Q. Are you in a position to state with any degree of definiteness or certainty the exact quantity of coal which was thus treated by you representing balances? A. The percentage?

Q. No, I am talking now about the quantity.

A. There are 907 tons of left-overs, besides the 21 we spoke of.

Q. Are you certain that that includes all of the balances left over and unaccounted for in these books? A. I believe so.

Q. So that to that extent, at least, your shortage naturally would be reduced and the overage account increased, the net [1929—1863] overage account would be increased? A. Yes, sir.

Q. I am talking about the net overage account, it would to that extent increase? A. Yes, sir.

Q. Now, it is also a fact, is it not, Mr. Caruthers, that in some instances here there would be a discharge of coal into a barge and from the barge into the yard bunkers, or the Mission Street bunkers?

A. Yes, sir.

Q. In other words, in so far as those transactions were concerned, they would appear from the books kept by the defendant, Mills, to be merely a transfer of coal from one part of the Western Fuel Company's plant to another? A. Yes, sir.

Q. But in each instance, you have, in tabulating

(Testimony of C. P. Caruthers.)

your figures, charged the account with so much coal received? A. Yes, sir.

Mr. OLNEY.—And also with so much coal discharged.

Mr. ROCHE.—Q. And also so much coal discharged?

A. Yes, sir.

Q. But if you eliminated the two figures, that is, the intake and the out-take, in a case of that kind, where the coal represented a transfer from one place to another, that, too, would to some extent affect the general percentage of overage? A. Yes.

Redirect Examination by Mr. OLNEY.

Mr. OLNEY.—Q. Now in regard to this matter of surplus, Mr. Caruthers, as I understand it, in the table that you prepared here, you charged 760 tons of surplus as going out of the barges? A. Yes, sir.

Q. And also put it in as having come into the barges? A. Yes, sir.

Mr. OLNEY.—If your Honor please, we make no contention [1930—1864] but that the charging of it into the barges was incorrect, as shown by the books; I think that is a mistake; I didn't know it until the witness was on the stand, that that had taken place.

Q. What difference in the total percentage of over-run would that 760 tons make?

The COURT.—But is that the total of the surplus?

Mr. OLNEY.—Yes, that is the total of the surplus.

A. That would make a difference of .09 of 1 per cent, approximately.

(Testimony of C. P. Caruthers.)

Mr. ROCHE.—That is, the surplus, alone?

Mr. OLNEY.—Yes, that is the surplus, alone.

The WITNESS.—Yes, that is the surplus, alone.

Mr. OLNEY.—Q. Now, coming to the balances on hand, or that are dropped, the 907 tons, I think you testified to 907 tons, do the books show that coal as having gone into the barges? A. Yes, sir.

Q. Do they show it as having gone out of the barges? A. No.

Q. In other words, where one of these balances is found, it consists in the barge having received a large amount of coal, say 12,000 tons, somewhere in that neighborhood, more or less? A. Yes.

Q. And having discharged nearly the same amount?

A. Sometimes, yes.

Q. Sometimes approximately the same amount?

A. Yes.

Q. With a slight balance left over? A. Yes.

Q. But the next time the barge starts, that balance is not taken into account in Mr. Mills' books?

A. No.

Q. In other words, so far as the books show, the balance was simply dropped, but the coal was still on the barge? A. Yes.

Q. So, then, under those circumstances, that coal was there in [1931—1865] the barge, but was simply not taken account of when Mr. Mills picked up the barge again to go on with it in his books?

A. Yes.

Q. In other words, in order to get a correct statement of the amount of coal that went into the barges,

(Testimony of C. P. Caruthers.)

and the amount of coal that went out of the barges, as shown by Mr. Mills' books, and the difference between the two and the consequent overage, you would have to take these balances into account?

A. Yes, sir.

Mr. ROCHE.—And you understand, Mr. Olney—and I merely make this suggestion in order to probably shorten the redirect examination, the point of the matter is that the witness had carried those into his shortage account every time, and treated the balance as a shortage.

Mr. OLNEY.—No, you are mistaken.

Mr. ROCHE.—Q. That is the fact, is it not, Mr. Caruthers?

A. I have shown it in my statement as a balance left over.

Mr. OLNEY.—He has shown it as a balance left over, and to the extent that it is left over, it reduces the shortage, or increases the overage, as the case might be. It does not make a particle of difference.

Q. Now, in reference to transferring coal from one barge into another, there is a case where possibly 1000 tons have been taken from one barge and put into another; you charge the barge receiving the coal, in the first instance, with that amount?

A. Yes, sir.

Q. Did you credit that barge or include in the items of charges out of the barge, the same amount, so far as the first barge was concerned? A. Yes.

Q. And then when you came to the second barge,

(Testimony of C. P. Caruthers.)

did you then charge that barge again with a thousand tons? A. Yes.

Q. And did you again credit it with a thousand tons when it went out? A. Yes. [1932—1866]

Q. So that the omission to note the fact that it was discharged by one barge simply into another, would not affect the overages or the shortages in any way; is that correct?

Mr. ROCHE.—That is objected to, if your Honor please, upon the ground that that does not follow, it must affect it.

The COURT.—It would not affect the total of them, but it would affect the percentage of them.

Mr. OLNEY.—That is what I am coming to, your Honor.

Q. It would not affect the total in any way, would it? A. No, sir, it would not.

Q. That is the fact, is it? A. Yes.

Q. And the only way it would affect the percentage would be by diminishing, in this particular case, both the coal that went into the barge and the coal that went out of the barge? A. Yes.

Q. And the extent to which it would affect the percentage would therefore be very small, would it not?

A. Yes, sir.

Q. Now, is the same thing exactly true of the cases where the barge had unloaded into the bunkers, that is, where a barge, for instance, took on coal at Folsom Street and carried it over to Vallejo Street, for instance, if there was such a case, and discharged the coal there?

(Testimony of C. P. Caruthers.)

A. It would be the case, but I do not know of any such. I believe there are some.

Q. But, assuming that there are some.

A. Assuming that there are some, yes.

Q. You would charge the barge with the coal it received at Folsom Stret, say, and you would credit her with the same amount at Vallejo Street?

A. Yes.

Q. So it would not affect the total amount of over-age? A. No.

Q. The only effect it would have would be to reduce to that [1933—1867] extent both the coal in and the coal out? A. Yes, sir.

Q. And the extent to which it would affect the percentage would, therefore, be very small? A. Yes.

Q. By the way, Mr. Caruthers, making this allowance for surplus, what is the final percentage of overrun on barges? A. You mean including that?

Q. Yes, including that. A. 4.99.

Mr. ROCHE.—Q. But it is a fact, is it not, that that percentage is still inaccurate, because it does not take into consideration deductions to be made by you from the shortages of balances left over: Is not that correct?

A. It does not give effect to those left-overs, no.

Q. That is, it does not take that matter into consideration? A. No.

Q. Nor does it take into consideration these other items to which Mr. Olney directed your attention on redirect examination, and to which I directed your attention on cross-examination: Is not that correct?

(Testimony of C. P. Caruthers.)

A. That is correct.

Mr. OLNEY.—Mr. Roche, have you got a statement of the amounts that were discharged, barge to barge, or barge to bunkers?

Mr. ROCHE.—Yes, I have some of them here, I guess I have nearly all of them.

Mr. OLNEY.—What do they aggregate?

Mr. ROCHE.—I have not got these added up. I will turn this over to you and you can examine them. I have them by years. I understand that Mr. Caruthers has a copy of this, or has the data.

Mr. OLNEY.—Q. Have you got the data by which you can compute the amounts discharged, barge to barge, or barge to bunkers? [1934—1868]

A. No.

Mr. ROCHE.—Then do you want to see this?

Mr. OLNEY.—Yes.

Mr. ROCHE.—These figures were compiled with him at the time, Mr. Olney.

The WITNESS.—I have a statement of the general differences.

Mr. OLNEY.—With regard to the balances left over, Mr. Roche, we contend absolutely that those were a part of the coal in the barges.

Mr. ROCHE.—I thought you wanted to examine the witness on this.

Mr. OLNEY.—No, I want to give it to him to let him verify it. I want the privilege of recalling this witness after these two matters have been figured out.

Mr. ROCHE.—We have no objection to that course being pursued.

(Testimony of C. P. Caruthers.)

Q. It is also a fact, is it not, Mr. Caruthers, that upon occasions a quantity of coal would be discharged into a barge and then discharged out of the barge into a vessel and the unchecked weight of the coal used; that is correct, is it not? In other words, take the transport "Sheridan," for instance, upon one occasion I notice there were 717 tons, 1984 pounds checked into barge, and that coal immediately discharged into the "Sheridan": Do you recall that item?

A. Can you give me the date, now?

Q. That would be the 19th of January, 1904.

Mr. OLNEY.—That is, so far as the "Sheridan" is concerned, she was charged with having received just the amount that went into the barge?

Mr. ROCHE.—I don't know whether that was the out-turn weight or the intake weight, but what I mean to say is this, that the [1935—1869] same weight was used.

The WITNESS.—Which barge was it?

Q. The "Thebold."

A. 717 tons, 1984 pounds, yes.

Mr. OLNEY.—I would like to verify that right now, Mr. Roche, because that is of some importance in this case.

Mr. ROCHE.—Go right ahead.

Mr. OLNEY.—Where is the book?

Mr. ROCHE.—The diary for 1904.

Mr. OLNEY.—And what is the date?

Mr. ROCHE.—January 19, 1904.

Mr. STANLEY MOORE.—I think that relates to instances like this, when the company could get the

(Testimony of C. P. Caruthers.)

Government to send their weighers down to the bunkers, they used to weigh the coal there on the bunkers, and weigh it right into the barges, to save the reweighing.

Mr. ROCHE.—Yes, I believe that is correct.

Mr. OLNEY.—Q. Now, that entry there, under date of January 19, in regard to the “Sheridan,” shows, does it not, that she received exactly the amount that was charged into the barge, and the weight charged into the barge is there in the entry?

A. Yes, sir.

Mr. STANLEY MOORE.—As a matter of fact, Mr. Olney, in the case of these transports, in many instances they would get the Government to send a representative right down to the bunkers, and thus save reweighing at the side of the vessel.

Mr. ROCHE.—There were only three instances of that kind during all of these years.

Mr. STANLEY MOORE.—We only sold 4,000 tons of coal a year to the transport; that business was very small.

Mr. ROCHE.—There were four instances.
[1936—1870]

Q. Have you your memoranda showing these items of balances of coal on board the barges?

A. You mean that was left over?

Q. Yes. A. Yes, sir.

Q. Let me call your attention to March 24, 1911; will you look at your items, please; have you a balance there of 543 tons, 1570 pounds? A. Yes, sir.

Q. Was that taken into consideration by you at

(Testimony of C. P. Caruthers.)

the time you prepared your tabulation?

A. Yes, sir.

Q. And the shortage? A. As a left-over.

Q. And finally added to your shortages?

A. Yes.

Mr. OLNEY.—Q. That is not a shortage; that appears as a part of your balance left over, does it not?

A. It appears that way in the net overage; in the end, it is deducted.

Q. In order to get the net overage it is deducted?

A. In order to get the net overage, yes.

Mr. ROCHE.—Do you want the witness to check this up?

Mr. OLNEY.—Yes.

Mr. ROCHE.—I suggest that he check it up with Mr. Costello, who is familiar with the items; it is barely possible that he might require some explanation of them.

**[Testimony of James B. Smith, for Defendants
(Recalled—Cross-examination).]**

JAMES B. SMITH, recalled for cross-examination, testified as follows:

Cross-examination by Mr. SULLIVAN.

I have been accustomed to go to the Folsom Street bunkers every morning since the Western Fuel Company was incorporated and I know in a general way how the temporary planks are laid under the hoppers, the location of the scales-house, the direction [1937—1871] in which the weigher looks when he takes a weight of coal, and that if he sits at his desk

(Testimony of James B. Smith.)

all day it is impossible for him to see the coal being discharged from any hopper into the cars. The scales-house, to the best of my belief, is located now as it was when the bunkers were first built, and before the Western Fuel Company took over those bunkers. Our alterations were made almost immediately after we took possession of the bunkers in July, 1904, but we did not change the location of the scales-house.

I was accustomed, on my daily visits to the different departments of the company, to discuss the condition of the business with my subordinates. Every morning I discussed in a general way with Mr. Mills the situation of the business in his department, not, however, in such detail as to the amount of coal that is discharged from the ships into the bunkers and from the bunkers into the barges and from the barges into steamships. Mr. Mills, however, made daily reports to me showing the amount of coal that was discharged from the ships into the bunkers and from the bunkers into the barges and from the barges into the steamships. Those reports were upon yellow slips of paper, but were not signed by Mr. Mills. They showed the number of tons and pounds of coal discharged from the ships into bunkers, but they did not show the number of tons and pounds of coal discharged from the bunkers into the barges. They did not, indeed, refer to any quantity of coal discharged from bunkers into barges, and I do not think there was any reference in these reports to that matter. Mr. Mills made these daily reports to me ever since the company began business. The 1912 reports are

(Testimony of James B. Smith.)

at the Western Fuel Company's office at 430 California Street. When Mr. Eddie Powers took Mr. Mills' place during the latter's absence he made similar reports to me, but not with the regularity that Mr. Mills did. [1938—1872] Whether he sent me daily records like those of Mr. Mills', I could not say without looking at the files in my office. Mr. Mills, also, in the reports which he made to me, gave the quantity of coal transferred from the barges into the ships. He did not, however, in the daily report, state the quantity of coal left over if the barge was not entirely discharged. He never made me a report showing the balance of coal on a barge at the end of a day's work. His memorandum always showed the overage according to his report. Whether Mr. Powers' report always showed an overage, I could not say without investigating. If he attended to his business in the same manner that Mr. Mills did, his reports would substantially be the same. These reports were sent to my office before the fire at 318 California Street, and since the fire at 430 California Street. After the fire, various people coming from the bunkers brought up the reports to my office. Mr. Mills, himself, reports to my office every day at the noon hour. When Mr. Powers took Mr. Mills' place, he did not do so. He reported only occasionally, not daily. I am positive as to that. I made it my business daily, therefore, to ascertain from Mr. Mills' office, or from Mr. Mills, the status of the business in his department. I did not make it my business to ascertain daily or whenever an overage occurred the amount of the

(Testimony of James B. Smith.)

overage of the particular coal. I read the reports as they came into me if I was not busy. If I were busy I merely had them stuck on the files.

Stock was taken two or three times a year; at the very least once a year. Sometimes I made the inventory and sometimes Mr. Mills did. No reference was made in the inventory to the character of the coal that had been piled or the quantity of coal that had been taken from the piles. These inventories did not [1939—1873] show the quantity of coal that had been piled in the yard. They did show the amount of coal in the yard, also the amount of coal on storage, as, for instance, in the "Algoa," and the amount of coal in the different bunkers. Those inventories were not in writing. They were made for the purpose of adjusting stock. They did not show the amount of coal on hand at a given date, nor the amount of coal sold from one given date to another given date, nor the amount of coal received, nor the amount of coal on hand at the end of a given time. The inventory did not show the amount of coal on hand at the time it was taken. The inventory was taken to ascertain the quantity of coal in stock. By coal in stock, I mean the coal we had on hand at a given date. The inventories contained a great number of items. No one except Mr. Mills and myself had any hand in making the inventory. Sometimes it might take us an hour and sometimes half an hour to make up the inventory. When made up, the inventories were not signed or entered in a book; they were merely entered down on a slip of paper that

(Testimony of James B. Smith.)

Mr. Mills handed to me. They were simply notations. To the best of my belief and knowledge, I don't think that I ever discussed with any of the directors of the Western Fuel Company, or of the stockholders of the Western Fuel Company, anything about the excess of coal in our coal stocks. I never reported to the stockholders the condition of the business as shown by these inventories, nor did I ever present them at a stockholders' meeting. I retained them in my possession perhaps half an hour; then handed them to the accountant who is now a man named Martin. I suppose he has been with us since the early part of the business. He was in constant employment by the company from 1906 to 1912. I don't know what the accountant did with these inventories, but I suppose he made the adjustment on his [1940—1874] books accordingly. I could not say whether he made any entry in any book showing the contents of these inventories. I have nothing to do with the accounting department. I gave the accountant the inventories so that he could adjust our coal stocks and arrive at the values of the coal on hand. What he did with the inventories, I don't know. They were merely in the shape of memoranda weights. The memoranda would all be entered simply on a very small page. I did not say that it took an hour or half an hour to make the inventories. What I did say was that it took us that time to ascertain the quantity of coal on hand. When I spoke on direct examination about an overrun of $2\frac{1}{2}$ or 3 per cent, I referred

(Testimony of James B. Smith.)

to the entire overrun in the business done by the Western Fuel Company as a whole. I never paid any attention to overruns on the barges; they were a negative matter to me. My estimate of a $2\frac{1}{2}$ to 3 per cent overrun is based on the receipt and sales of coal, the stock of coal on hand at the commencement of the business, and the stock of coal on hand at the taking of stock. In answer to the question whether any one of these inventories is now extant anywhere, I would say that Mr. Martin may have some. Those inventories showed the overrun every year.

Prior to this indictment, I think I was on top of the bunkers every day, and, therefore, I was around there when the custom-house weighers were weighing the coal. I have personally made estimates or calculations to determine the difference between the weight of coal weighed upon a rising beam and the weight of coal weighed upon an even beam. I used to do that in my early career in the coal business when I was a weigher, and I have also done it since. I have done it during the last eight years on platform and on bunker scales, both at Folsom Street and Mission Street docks. [1941—1875]

The increase in the weight of bituminous coal from Nanaimo, stored, say, during June, July, August and September in the yard of the Western Fuel Company, would, if the coal was weighed in by the customs authorities under the rules and regulations of the treasury department, in my opinion, though it is only my opinion, be from one to two per cent.

(Testimony of James B. Smith.)

Q. You say that the principal cause of increase in the weight of coal is water; that is a fact, is it?

A. No, I did not say that entirely.

Q. What is the principal cause of increase in the weight of coal stored in a coal yard?

A. Under what conditions?

Q. Under ordinary conditions?

A. Well, the conditions are entirely changeable.

Q. Well, say, in the summer-time, say from June to September? A. What kind of coal?

Q. Bituminous coal, Nanaimo coal?

A. But who would do the weighing?

Q. Ah, then it makes all the difference in the world who does the weighing what the coal weighs, does it?

A. If you will give me the kind of a question I can answer—do I infer from your question, Mr. Sullivan, that the weighing shall be done under the supervision of the United States Government and the coal stored in our yard?

Q. In response to a question which I put to you, you said it makes a difference who does the weighing: What did you mean by that response?

A. I said it make a difference as to the weighing?

Q. Yes. Read what the witness said, Mr. Reporter?

(Record read by the reporter.) [1942—1876]

A. I will qualify that, Mr. Sullivan, by asking and by repeating my question: Am I to assume in that question that the weighing is done by United States Government officials as it is done there at the Fol-

(Testimony of James B. Smith.)

som Street or any other bunker, over a scale?

Q. Well, we will assume that the coal is weighed on a rising beam?

A. Then the question comes back again, what do you mean by a rising beam?

Q. What do you understand to be a rising beam?

A. This morning I stated that a rising beam depends considerably upon the method used in the rising beam; it is a question of the individual, entirely.

(Witness continuing.) This morning I testified that I thought the customs authorities in weighing with a rising beam gave, in my judgment, one-half to three-fourths of one per cent. What a gently rising beam is, would depend upon the individual and his interpretation of what a rising beam is. I am not responsible for the interpretation that any individual gives as to a rising beam. If bituminous coal from Nanaimo were weighed in first by the custom authorities, under the rules and regulations of the Treasury Department, and then stored for three or four months, say in June, July, August and September, I think there would be an increase of from one to two per cent.

I had heard of the oxidation of coal before the commencement of this trial. I read about it in the Bureau of Mines pamphlets during the past two or three or four years. I never, myself, examined into the effect of oxidation itself upon the weight of coal. I did not ever understand that oxidation of coal made any change in the weight thereof. I never knew that before this trial commenced. I knew

(Testimony of James B. Smith.)

there were chemical changes [1943—1876a] in piles of coal, but I did not know they were due to oxidation entirely. I could not give you an opinion as to how much coal weighed at Nanaimo, transferred on a four-days' voyage from Nanaimo by ship to San Francisco and here transferred from ship to bunkers, from bunkers to barges and from barges to liner, all within 30 days, would increase or decrease in weight, because your question does not state that the coal was weighed here in San Francisco, and we have never handled coal without weighing it as it is discharged from the incoming vessel. Anybody would know that coal stored in our yards during the winter months would increase in weight. The absorption of moisture would be one cause of increase. The other causes could not be given unless you specified the conditions under which the coal is stored. Whether the moisture evaporates from a pile of coal in warm, sunshiny weather depends upon conditions. The moisture, whether inherent in the coal or the result of chemical combinations with the coal, will evaporate only from the extreme [1944—1876b] surface of the pile during the three or four months when we have trade winds and plenty of sun in San Francisco. I mean by "extreme surface," the top and sides, and down into the coal a foot or two. Moisture does not frequently seep off at the bottom of a pile of coal unless the pile is thoroughly saturated. In most piles of coal the moisture would be held in so that the pile would be just the same when broken down as when stored.

(Testimony of James B. Smith.)

We never made charges of coal into the bunkers. Mr. Mills made a great many entries in his own books. I did not see those books frequently. In fact, until this trial took place, I never paid any attention to them, except to notice them incidentally on his desk.

Whether coal on its arrival in San Francisco was wet or dry depends on the conditions under which it was loaded and on the conditions of the voyage. The Australian coal coming to San Francisco is not always dry. It was Australian coal that was being discharged from the vessel the day the jury visited the docks. It is not true that when Australian coal comes to San Francisco after a 30 or 40 days' voyage it is always dry. I never in my life examined the so-called "Mills' dock books or diaries" covering the years 1906 to 1912. In answer to the question whether it is possible I never looked at those books at all to ascertain the overage or the shortage, or the quantity of coal charged up against a barge, etc., I would say that, as I explained in my direct examination, we were not interested and I was not interested in the quantity of coal that went into the barges; all that I cared about was the final weight that was charged against the vessels or people that were receiving coal from our barges. The barges were simply floating store-ships with scales adjusted on them to ascertain the delivered weight [1945—1877] the same as the platform scales down on the street to ascertain the quantity of coal delivered out from the yard. I suppose I knew Mr. Mills was keeping

(Testimony of James B. Smith.)

those books, because they were there on his desk, but I never examined into their contents nor was I interested in their contents. They were his own method of keeping account down there to his own satisfaction. As manager, I was, of course, interested in the manner in which every department was run, but it was not necessary for me to, and I did not, ask Mr. Mills why he made entries in those books. His purpose, as I understood it, was only to keep a general idea of the amount of floating storage we had so as to be able to know from day to day what position we were in to meet the requirements of steamers calling for coal. I remember very well the "Algoa" being in the stream with a cargo of coal. She was a store-ship loaded with Western Fuel Company's coal. The coal was weighed into her at the Folsom Street bunkers. We hired the steamer for a store-ship. To the best of my belief, the coal was eventually weighed out of her, but I have no personal knowledge of that fact. I do not know how many tons of coal were in that store-ship. I will assume, if you say so, there were 8,000 tons. I think that amount of coal remained aboard her for possibly a year, but it was reported that the coal was heating and we sent a barge out and removed a quantity sufficient to show that the balance of the coal was at a normal temperature. I am not positive, but I assume that all that coal was eventually weighed out. I do not know why it was weighed out except it was to ascertain the weight of the coal

(Testimony of James B. Smith.)

stored in the ship. I assume it was weighed out by our men. It did not cost us anything to weigh it out because we have men employed by the month.

The reports that I received daily, and to which I testified on direct examination, came from the different heads of departments. [1946—1878] I received a report from Mr. Miller as to the amount of coal he weighs over the wagon scales; I also received a report from Mayer, and from Mr. Mills and from the Central Coal Company and from other coal companies that we have, and I get a report from the mines also. The daily report I received from Mr. Mayer gave a distribution of the coal discharged from such vessel as happened to be at the bunkers and the cost per ton for the discharging of the coal from each hatch working at that particular time. This report would show that certain coals went into the barges, certain others into the offshore pockets, certain others into the yard bunkers, certain others into the wharf bunkers, and certain others into the yard on storage. This report showed the custom-house weights of the discharged coal from that vessel for that day. I could not say whether it would give the weights to a pound for the disposition of the coal to each particular place. It gave the weights, but whether in pounds, ten pounds or five pounds, I do not recall. It also gave a general distribution of the coal, whether it went to barges or offshore pockets or to the yards, and the weight of the coal at each place. There is always an overage in coal which remains here a while and is then delivered.

(Testimony of James B. Smith.)

When we adjust our stock we find an overage irrespective of where the coal goes. In answer to the question whether when the wholesaler gets his coal from us he meets with an overage too, I can only say I don't know anything about his business. I was once in the wholesale business myself. It all depends on conditions whether I found overages when I was in the wholesale business. If the coal was weighed by the customs authorities on a rising beam and subjected to atmospheric conditions here in San Francisco and carefully weighed out, there would be bound to be an overage with a commodity of that character. [1947—1879]

In answer to the question whether the retailer always had an overage, I would say I don't know anything about his business. If you want so to assume it, the customers found an overage too, but I do not like to go down as far as that, because my experience does not cover it. McDonough & Company were engaged both in the wholesale and retail business when I was with them. As retail dealers they always met with an overage. We never had any trouble with their customers. We commanded the best trade here in San Francisco, and that is pretty good evidence that we gave them value received for their money.

I had absolute charge of the donation account. I principally determine the amount and the beneficiaries of these donations, but when I thought that there were questions regarding certain charitable organizations, as to the amounts, I discussed such questions

(Testimony of James B. Smith.)

with others. Mr. Chisholm did not to my knowledge receive more than nine tons of coal by donation. I am supposed to have a thorough knowledge of the disposition of these donations and of their extent. Coal was not to my knowledge frequently given to Mr. Chisholm and others of which no record was kept by the company. I was here in court when Mr. Chisholm testified he got all his coal from the Western Fuel Company for years past. I think he is the superintending engineer for the Pacific Mail Steamship Company. If he attends to his duties, he certainly looks after the coal that is received by that company. Mr. McCarthy is in the Treasury Department. He is a long-time friend of mine, for 30 years. When you ask me whether "I had to give him coal to grease the wheels in his office down there," I will answer that if you want to assume it that way you can. I don't know Mr. Thompson of the Pacific Mail, and I do not know what his title was there. I knew that our bills or claims had to go through his office. I am not aware that certain engineers [1948—1880] of the Pacific Mail Steamship Company also received donations. I am not aware of the fact, if it be a fact, that our own donation account shows that. So far as I know, all donations made by the Western Fuel Company within the last 8 years appear on the books of the company in one form or another. In answer to the question whether I don't know Mr. Chisholm testified he got \$50 every Christmas, and the books only show one or two payments to him, I will say that I cannot help what Mr.

(Testimony of James B. Smith.)

Chisholm testifies; I am answering the questions put to me as I understand them and know the facts. There was no money distributed from the Western Fuel Company to the employees of the Pacific Mail Steamship Company except at Christmas time. That I am positive about. I certainly consider that the giving of coal to Mr. Schwerin was a matter of courtesy. I take the responsibility for receipting, without getting payment, the bills made out against Mr. Schwerin. It is true that the books of the company show that those bills were charged up against Mr. Schwerin and that he was credited with the amount of the bills every once in a while; that was under my authority. I did not do that entirely for the purpose of making it appear, in case anyone should examine the books, that Mr. Schwerin was paying for the coal, but simply to insure that, if Mr. Schwerin came there in my absence, he would find that the bills were paid and would not be able to pay for the coal himself, and I did not intend that he should pay for it. If Mr. Norcross testified in this case that whenever coal was given by way of donation to anybody that fact appeared in the donation account. I believe he was testifying to the best of his knowledge and belief. I will assume that I heard him afterward testify to the fact that I receipted the Schwerin bills without getting payment. The entry of the amount of coal gratuitously given to Mr. Schwerin [1949—1881] in the operating expenses, without setting forth the facts as they actually existed, was a matter for the accounting department. Those amounts were

(Testimony of James B. Smith.)

charged up to the operation of the business and that was sufficient. Mr. Schwerin never got his coal gratuitously until about the time of the fire. I do not think that there are any books extant now that were in existence at the time of the fire of 1906. I do not think there is any account with Mr. Schwerin prior to the fire and earthquake of 1906, but I will make this statement; as a matter of fact, all payments of all kinds in the transaction of our business in the way of checks and letters containing checks passed through my hands and Mr. Schwerin sent checks for the payment of his coal prior to the fire of 1906, and I received those checks. I am a very warm friend of Mr. Schwerin and have been for 25 years.

I cannot say that I had an acquaintance with Eddie Powers. He was simply in the employ of the Western Fuel Company. I knew who he was and the character of his work, but I certainly did not consider him an acquaintance of mine. I do not consider the employees of the company as my acquaintances. I couldn't say when I first saw Eddie Powers. He took Mr. Mills' place several times when Mr. Mills was incapacitated, and I think that occurred in the years 1909, 1910 and 1911. Up to 1911, he certainly performed his duties, so far as I personally know, to our entire satisfaction. To the best of my belief, Mr. Mills was away three or four months in 1911. I am not certain how long it was. I am not sure, but I think I had to ask a number of times during this period where Eddie Powers was, so

(Testimony of James B. Smith.)

that I could discuss with him generally how things were going in his department, and I think I was either met with the statement that he was sick or would be attending to his duties. It is not a fact that Eddie Powers [1950—1882] reported to me daily up to the time he got sick. I certainly had confidence in Eddie Powers while he was working for me. I have confidence in all our employees. I do not know, but I presume that Edward Powers was keeping the dock-books or diaries during Mr. Mills' absence; that was a part of his duty, I presume. I did not know, and your question for the first time suggests to me, that Eddie Powers was in the German Hospital toward the end of the period he was substituting for Mr. Mills in 1911. They told me several times when I inquired for him that he was sick, but I did not know that he was confined to his house or in the hospital. I don't know anything about his having had a growth in his nose and an operation. I cannot say that I personally had any complaint against Eddie Powers before Mr. Mills made complaint against him, but I cannot say either that the first intimation I got that Eddie Powers was neglecting his business came from Mr. Mills. Mr. Mills never informed me that he and Powers had had a quarrel over money matters. When Mr. Mills discharged Eddie Powers, I was very sorry, because, as I stated before, I thought he had the makings of good timber in him.

Q. Do you remember the time the "Aztec" was being loaded from the "Melrose," and that Chief

(Testimony of James B. Smith.)

Engineer Lindley, of the Pacific Mail Steamship Company complained of the quality of the coal?

A. No, sir.

Q. Don't you remember the occasion when the "Aztec" was being loaded from the "Melrose," and that the engineer complained about the quality of the coal that was being put into the "Aztec" from the "Melrose," and that upon the engineer making a complaint as to the quality of the coal that was being put into the ship "Aztec," Eddie Powers had another barge brought in with the very same kind [1951—1883] and quality of coal in it that was in the other barge, and that he made the engineer believe he was getting a better quality of coal, and that afterward you met Powers and you made the remark to Eddie Powers, "I always knew you would make a damn good man?"

A. I don't remember it, Mr. Sullivan, but if you wish to assume it, I will say yes, and I thought he was a damn good man at one time, and I think if he had taken the advice of his superiors around our place he would be a good man to-day.

Q. And don't you know that you made that remark because he succeeded in getting discharged from the second barge the same kind of coal as the coal that had been condemned by the engineer of the "Aztec" on the first barge?

A. If he did it, Mr. Sullivan, I would say he was a damn good man, yes, sir.

Q. Don't you know that the quality of the coal that was condemned at that time was Telegraph Hill

(Testimony of James B. Smith.)

rocks, or something of that kind? Don't you know?

A. Telegraph Hill what?

Q. Telegraph Hill rocks?

A. I don't know what you mean by that.

Q. Didn't Engineer Lindley at that time say that the coal was good for nothing, it is all rocks?

A. I don't have any recollection of that, Mr. Sullivan.

Q. But you do have a recollection that Eddie Powers succeeded in getting the "Theobold," I think it was, discharged into that ship with that same kind of coal?

A. No, I don't recollect it, but if he did it, I will say that he was a good man.

Q. A good man in business?

A. Yes, he did well. If we listened to all the kicks and complaints of engineers, Mr. [1952—1884] Sullivan, we would have nothing else to do.

Mr. Schwerin, to the best of my belief and knowledge, has never owned one share of Western Fuel Company stock at any time since the incorporation of the company, nor does he, to the best of my belief and knowledge, own one share of said stock to-day, nor is he interested in any shares which stand in the names of other persons as trustees or otherwise. I am interested in some of the shares which are held in trust, and I have, I think, 1500 odd shares standing in my own name individually. No one connected with the Pacific Mail Steamship Company is interested in a single share of stock which stands in my name as trustee. No one connected with the cus-

(Testimony of James B. Smith.)

toms-house is now, nor has any such person been, interested in any stock of the Western Fuel Company.

Redirect Examination by Mr. STANLEY MOORE.

Q. Mr. Smith, it has appeared in evidence here that you have signed certain affidavits with respect to money that was collected on the drawback of money by the Pacific Mail Company; who prepared those affidavits, or who gets up that form, do you know? A. The customs broker.

Q. So far as these affidavits are concerned, did you, as a matter of fact, ever attach any importance or significance to the proposition as to whether all of the coal that came in by any one vessel reported in here was, in fact, taken from that vessel, and all her cargo put on the same Pacific Mail liner?

* * * * * * *

A. That is the only importance I attach to it, it was dutiable coal, coal that the duty had been paid on, and when I signed the [1953—1885] affidavit for rebate, it was merely so that the people could get their duty, knowing that the duty had been paid, and I paid no particular attention to any particular vessel the coal came in or not, so long as it was dutiable coal.

Mr. STANLEY MOORE.—Q. So far as the coal going into the Pacific Mail liners is concerned, was all of that coal dutiable coal, whether it came in here by one vessel or another?

Mr. ROCHE.—That is objected to on the same grounds. Your Honor recalls that these affidavits

(Testimony of James B. Smith.)

expressly and on their face point out the particular vessel in which the coal was imported.

The COURT.—I understand that. There was some showing that coal had not come from a particular vessel. He explains that by saying he paid no attention to the vessel it came in, other than to know it was imported coal, and coal on which rebate might be collected.

A. And certainly I would not sign the affidavit if I was not positive of that fact.

Mr. STANLEY MOORE.—Q. So far as that drawback money was concerned, who got the money?

A. In the instance of the Pacific Mail Steamship Company, it was paid directly to the Steamship Company from the United States customs authorities. We had nothing to do with it, whatsoever.

Recross-examination by Mr. SULLIVAN.

Mr. SULLIVAN.—Q. Of course, inasmuch as the drawback duties went to the Pacific Mail Steamship Company, in fixing the price of coal, that was taken into consideration, was it not?

A. In what respect, Mr. Sullivan?

Q. The fact that drawback was paid to the Pacific Mail Company, [1954—1886] that was taken into consideration when the price of coal was fixed that you sold to the company, was it not?

A. I cannot say that it was. It was simply a fact that that was very low price business, and there were really not many elements taken into consideration; that was a low price business.

Q. Being a low price business, was not that the

(Testimony of James B. Smith.)

important matter to take into consideration?

A. No; it was simply because they were operating under the American flag. Other steamship companies operating under foreign flags received a subsidy, and I suppose that this was in the form of a subsidy, that they got back that 45 cents.

We had no contract or specifications covering our sale of coal to the Pacific Mail Steamship Company, either written or verbal. We just had an ordinary arrangement from time to time with Mr. Schwerin. The Pacific Mail Steamship Company could stop taking coal from us to-morrow or we could stop delivering coal to them to-morrow. We have the same arrangement with all other steamship companies. We make no written contracts with steamship companies here in San Francisco.

I absolutely did not know that Eddie Powers was going down to Mr. Olney's office until he had arrived there.

[Testimony of C. P. Caruthers, for Defendants (Recalled).]

C. P. CARUTHERS, recalled for the defendants, testified as follows:

Direct Examination by Mr. OLNEY.

Mr. OLNEY.—Q. Mr. Caruthers, referring to your revised statement, will you state the total amount of coal loaded into the barges from 1904 to 1912, both years inclusive?

A. Excluding that which went out to bunkers?
[1955—1887]

Q. No, I don't want that excluded; I mean the

(Testimony of C. P. Caruthers.)

total amount that went in?

A. The total amount that went in—that is, excluding the surplus items which we referred to before, is it not, excluding items which were called surplus items before?

Q. Right in that connection, Mr. Caruthers, the surplus items were not charged in Mr. Mills' books as going into the barges, were they? A. No.

Q. Now, I want the total amount which was charged in Mr. Mills' books as going into the barges in those nine years, which, of course, will omit the so-called surplus items?

A. Does that include the coal that has gone into the barges once and later transferred to other barges?

Q. It does, it includes all the coal that has gone into barges.

A. 953,321 tons, 1504 pounds.

Q. What is the amount that came out of the barges, according to Mr. Mills' books?

A. 1,000,138 tons, 1964 pounds.

Q. What is the difference?

A. 47,578 tons, 49 pounds.

Q. That would represent the net overage during that time, would it? A. Yes, sir.

Q. What percentage is that? A. 4.99.

Q. In those totals which you have given of the amounts into barges and the amounts out of barges, there are certain items which merely correspond to the transfer of coal, either from barge to barge or from one bunker to another bunker by means of the barges; what are the total amounts of such deliveries

(Testimony of C. P. Caruthers.)

into barges? A. 8733 tons, 710 pounds.

Q. What is the total amount of the deliveries out of barges, of the same sort?

A. It is the same amount, 8733 tons, 710 pounds.

Q. Now, deducting those amounts from the totals, both going into barges and coming out of barges, what percentage of overrun do you [1956—1888] get? A. 5.04 per cent.

THEREUPON, THE DEFENDANTS RESTED.

**[Testimony of Albert Lockett, for the Government
(in Rebuttal).]**

ALBERT LOCKETT, a witness called for the United States in rebuttal and sworn, testified as follows:

Direct Examination by Mr. ROCHE.

I am a master mariner on the "Algoa," and have been for about 13 years, except for a time when she was laid up. The Pacific Mail Steamship Company is the managing agent for the "Algoa," and has been for a number of years. I recall the time when the "Algoa" was used as a storage-ship during 1908 and 1909 by the Western Fuel Company. At the time I was detached from the vessel, but I was looking after her to see that no damage was done to her. The vessel carried no crew at that time other than two watchmen. I recall coal being discharged into the "Algoa" from one steamer. At the time when the Western Fuel Company took the "Algoa" as a storage ship, the Pacific Mail Steamship Company had bunker coal in her hold to the amount of about 1600 tons. These 1600 tons were located in the per-

(Testimony of Albert Lockett.)

manent bunker, the reserve bunker and in No. 2 lower hold. The lower hold is not partitioned off or divided into sections; there is simply a bulkhead dividing it from No. 1 hold and from the reserve bunker. The 1600 tons of coal to which I have referred took the whole of the lower hold. There was a three-inch planking completely covering the coal. I recall the time when the "Algoa" was finally discharged by the Western Fuel Company. I was transferred from the "Algoa" just [1957—1889] before she was finished up, but practically all the coal had been discharged by that time and none had been taken out of the bunkers. The coal contained in the forward hold of the ship was not interfered with in any way whatsoever. The three-inch planks were still situated over the coal when I left. The Western Fuel coal and the Pacific Mail coal were not mingled in any way. The character of the coal already located upon the ship when it was given over to the Western Fuel Company for storage was Japanese coal. The character of the coal that was discharged into the ship was, to my knowledge, Australian coal.

Cross-examination by Mr. STANLEY MOORE.

I did not remain there until the complete unloading of the Western Fuel Company's coal. I don't remember any chalk lines marking the division between the Western Fuel Company's coal and the Pacific Mail Steamship Company's coal. We had planks down there and there was no necessity for chalk lines. I do not think there were 1,600 tons

(Testimony of Albert Lockett.)

of coal left in the "Algoa" after the Western Fuel Company's coal was taken out. I don't see why there should be 1,600 tons, because they had used part of the coal at the time the Western Fuel Company took the "Algoa" for the donkey boilers, getting up steam, moving the vessel around the harbor, and in moving the anchors. I could not tell you from my recollection what the quantity of coal in the "Algoa" was after this Western Fuel Coal had been taken out.

At this point, Mr. Olney, one of the attorneys for the defendants, introduced in evidence a final statement showing the barge overage to be 4.99 per cent; also, the plates and tables used in [1958—1890] connection with Professor Folsom's testimony, said documents being marked Defendants' Exhibit "SS."

[George W. Brown, for the Government (In Rebuttal—Withdrawn).]

GEORGE W. BROWN, a witness called for the United States in rebuttal, was here duly sworn, but was withdrawn temporarily in order that the prosecution might put certain Government officials on the stand.

[Testimony of E. H. Montell, for the Government (in Rebuttal).]

E. H. MONTELL, a witness called for the United States in rebuttal and sworn, testified as follows:

Direct Examination by Mr. ROCHE.

I now live, and have lived since 1856, in San Fran-

(Testimony of E. H. Montell.)

cisco. I am now, and have been for 20 years, in the Government service, and, during the last four or five years, I have been inspecting and guarding ships. By guarding ships, I mean I watch to see that there are no dutiable goods coming off the ship. I may be stationed at any pier or at no particular pier. I am familiar with the Mail Dock, Piers 42 and 44. I have been on those piers considerably during the last three or four years. I am, and have been for some years, more or less familiar with the barges operated by the Westrn Fuel Company in the coaling of liners belonging to the Pacific Mail Steamship Company. I have frequently observed the coaling operations. Sometimes I have been stationed on the barges by my superior officer to see that no opium is transferred from the liners to the barges. While so stationed on the barges I have, to a certain extent, observed how far the barges would be cleaned out. That, of course, was not a part of my duties, but I could not help observing it incidentally, especially in the case of two of the barges, namely, the [1959—1891] “Nanaimo” and the “Comanche.” I don’t know as I ever, during the four or five years that I have been stationed on the barges, saw any of them cleaned out. They would take out the coal as long as they could shovel it into the buckets without detaining the men too long. When the bulk of the coal got out, they would stop work and the barges would go away again. To the best of my judgment, I would say there would be left in the barges anywhere from five to twenty tons of

(Testimony of E. H. Montell.)

coal which had not been scraped up or cleaned out. That was the situation so far as I saw it every time I had the barges in observation. In other words, this same quantity of coal still remained every time they cleaned out. I am familiar with some of the big boats like the "Mongolia" and "Manchuria" which take large quantities of coal. I have observed one of the barges continue coaling the "Mongolia" or the "Manchuria" until she was cleaned out and then leave and be replaced by another barge which would come in and continue the coaling. I would testify that while coaling those big liners, the barges would remain until they were practically cleaned out, and most of their coal discharged into the liner. I cannot say that I have ever seen one barge waiting alongside for another barge to get cleaned up so that she could take her place in coaling one of these big liners, though I have seen a barge clean up and go away and another come in within an hour or two. As near as I could say, the barge thus going away would be empty. I am familiar with the tides in the vicinity of those two piers. We have four tides a day, two ebbs and two floods. Some are very small tides and do not amount to much. At the times that I have been guarding, I have seen one case of a barge interfered with by the tides inside the offshore and of the piers. I don't remember the date, but I remember the [1960—1892] circumstance of David Powers getting into trouble. I didn't remember the name of the barge involved until this morning when I came to think

(Testimony of E. H. Montell.)

the matter over. As near as I can tell, it was the "Melrose," but I am not positive even now. I recall being stationed upon the "Melrose" for the purpose of guarding it after this trouble happened. I don't remember the name of the vessel the "Melrose" was coaling at that time. I remember searching the "Melrose" before she left the vessel's side. I did not want to stay too long on the search because my place was on the deck, but I made a thorough search to see if I could find anything. That was after they had knocked off work and everything had gone away. I should say there might have been 25 or 30 tons of coal left in the barge. It was scattered along through the barge with a little amount in each end. That is where the coal would ordinarily be left in the cleanup of a barge. I have known of instances when, while a barge was coaling a liner, the barge would be taken away and another barge brought in before the first barge was completely discharged of her cargo. I don't know where those partially unloaded barges would then proceed. It happened much oftener that a barge would be cleared before leaving a vessel than that she would be sent away only partially discharged.

Cross-examination by Mr. STANLEY MOORE.

When I was detailed to a barge to guard a ship, I would be there eight hours a day, and, in the course of a month or 30 days, I would probably be so detailed ten or fifteen times. In addition to myself, there would be on the barge, when the ship

(Testimony of E. H. Montell.)

was discharging drawback coal, the United States weigher, [1961—1893] the company's weigher and the Western Fuel Company's weigher. I would ordinarily remain right next to the side of the ship. In fact, I had strict orders to stay there and not go to the offshore side of the barge. I could not help seeing the tubs come up sometimes. There was no particular part of the day when they would move these barges. It would be just as occasion required. When the ship was ready for coal, they would bring a barge over. I did not notice that the water would be at any particular stage when they would bring in a new barge. The barges are towed in to the side of the ship by the red stack tugs. I never noticed that it was at a particular stage of the water that the barges would be moved. I never noticed that that moving was done during what they called slack water. However, I never took any particular notice of that one way or another; my interest was in the ships and to see that no dutiable goods or opium passed from them.

I think it was last evening that the Deputy Surveyor, Mr. John D. Stone, asked me to think back and see whether I could remember the condition of the barges as to their coal content when they would be taken away. I then spoke to Mr. Sullivan and Mr. Roche and Mr. Tidwell regarding the matter, the meeting taking place in the office of Sullivan, Sullivan and Roche this morning. Four or five inspectors and four or five weighers were also present. It is a fact

(Testimony of E. H. Montell.)

that in all the barges, except two, I was not able to see how much coal was in the hold toward either end, or the wings, unless I went down into the bottom of the barge. It is a fact that I very rarely went down, probably not once in 6 or 8 months. On the two barges on which I could observe conditions from the deck, there would be loose coal lying around in the wings and at the end which it did not pay the men to scrape up. [1962—1894] That matter of 25 or 30 tons which I have testified remained in a barge at her cleanup ordinarily, is simply an estimate on my part, and I do not claim to be a good estimator. I have never weighed coal by the wholesale, though I was in the coal business here at one time myself, about 50 years ago. I was very often down on the barges during the period from September, 1912, until February 1, 1913. I was never there at night during that time.

[Testimony of George B. Richardson, for the Government (in Rebuttal).]

GEORGE B. RICHARDSON, a witness called for the United States in rebuttal and sworn, testified as follows:

Direct Examination by Mr. ROCHE.

I now live in San Francisco, and have lived here 25 years. I am at present an inspector of customs, and have been connected with the customs service something over 18 years. In the 5 or 6 years immediately preceding January 1, 1913, I was principally on guard duty, being stationed at different steam-

(Testimony of George B. Richardson.)

ers, and, principally, the Pacific Mail steamers, for the purpose of preventing dutiable goods being transferred from the steamer until after the duty had been paid. I especially looked out for opium. The Pacific Mail steamers were at Piers 42 and 44. I used to be stationed on an average four or five times a month upon Western Fuel Company's barges, which were drawn up alongside Pacific Mail liners. I would be located on the inshore side of the barge, or adjoining the offshore side of the steamer. On several occasions I would remain on the barge until she was practically cleaned out. I have sometimes been on barges alongside the "Manchuria" and "Mongolia." Sometimes I would descend into the hold of those barges to make a search [1963—1895] for opium. I generally noticed on such occasions that when the barge was about to be replaced by another barge it was practically cleaned out. There might be anywhere from two to twenty-five tons of coal scattered around, principally in the wings in little piles and in the ends of the barge. The amount of coal thus left would vary all the way from three tons to twenty-five tons. If the ship was not fully coaled, a barge, before leaving, would be practically cleaned out down to the amount I have mentioned. Sometimes I would observe barges out of which some coal had already been discharged being brought to the side of a liner, and I have observed such barges to remain at the side of the liner until they were practically cleaned out of coal. I don't remember any case where a barge was

(Testimony of George B. Richardson.)

completely cleaned out when she was taken away from the side of a liner and replaced by another barge. That might possibly have occurred, but I don't remember having seen it.

Cross-examination by Mr. STANLEY MOORE.

I have worked on Western Fuel barges on perhaps 25 or 30 occasions in the last five years when the barges were actually pulled away from the side of the ship. I would be stationed on barges four or five times a month, but frequently, of course, would not remain until the departure of the barge. My quitting time is about a quarter to four. The men on the barges quit work about five o'clock. When a vessel has finished coaling, as a general rule, a barge will have quite an amount of coal left aboard. I have seen barges changed at the sides of vessels during their coaling, and that would occur not only in the case of the big boats, but also with the smaller boats. It all depends on the quantity of coal the vessel brings with her into this port. [1964—1896] Some of the vessels coal at Nagasaki, and, consequently come in here with an extra quantity of coal in the holds. When they thus have their bunkers almost full, they do not ordinarily exhaust the coal in the first two barges that are put alongside of them. The Pacific Mail liners, aside from the very large boats, will take anywhere from 300 up to 3,800 tons of coal. I have no way of ascertaining the exact amount. It is of no interest to me. The capacity of the general run of the barges of the Western Fuel Company is from 800 to 1,000 tons. I have

(Testimony of George B. Richardson.)

known the last barge working on a vessel to have quite a considerable quantity of coal in her when the ship was finished. In fact, I have heard the statement made that only 100 tons or so were to be taken from a barge coming up practically full. In answer to the question whether I have seen times when the Western Fuel Company had so much coal in those barges that even when a barge would discharge only 150 tons she would go back to the bunkers, and the next time I would see her, be loaded up, I would reply that I don't know where the barges went. Sometimes they would pull up to the head of the slip and lay there between Piers 42 and 44, but I have seen barges discharge only 150 tons into one of the vessels and then be taken away. I was on duty between August, 1912, and February 1, 1913, on the waterfront. It was about 25 times in the last five years that I saw a barge finished while I was there.

**[Testimony of Symmes H. Hunt, for the Government
(in Rebuttal).]**

SYMMES H. HUNT, a witness called for the United States in rebuttal and sworn, testified as follows:

Direct Examination by Mr. ROCHE.

I live across the Bay. I am an inspector of customs in [1965—1897] the employ of the United States Government, and have been since January 10, 1880. Then I was out for a few years, but I have been back continuously since 1899. During the

(Testimony of Symmes H. Hunt.)

four or five years immediately preceding January 1, 1913, I was stationed along the waterfront wherever a foreign vessel was coming in. I spent a part of my time at the Pacific Mail Dock, where I had occasion to observe barges owned and operated by the Western Fuel Company coaling Pacific Mail Steamship Company's liners. That was a frequent occurrence. My station would be on the inshore side of the barge next the offshore side of the vessel. I was very frequently there stationed. It often happened that a liner would complete her coaling while I was there upon duty. I sometimes observed one barge, out of which coal had been taken for the purpose of coaling a liner, move away and be replaced by another barge. Sometimes the first barge would be nearly cleaned out, and at other times, she would have perhaps from 100 to 150 tons of coal left aboard. I have seen the barges cleaned out many times. Before another barge would be brought alongside, the first barge would be cleaned out. The second barge might be waiting at the end of the dock. At other times, she would not arrive until after the first barge had gone. It would all depend upon the tide. I never descended into the hold of a barge; that was not my business. I would look down, perhaps, before leaving, so that I had a good chance to observe the hold of the barge with respect to the extent that she had been cleaned out.

Cross-examination by Mr. McCUTCHEN.

I usually station myself, when on the barge, on

(Testimony of Symmes H. Hunt.)

the inshore side next the ship, where I could see everything that went on. The barges are not decked over at all. The hatches are not decked over. There is a deck there, but there is a hole, they are nearly all holes. My impression of the decks on those barges is that they run all the way from 60 to 80 feet. I could see down into the hold of the barges from the deck, both forward and aft, but my duties did not require me to make [1966—1898] any observations as to the amount of coal which remained on board after the barges had entirely or partially coaled the steamers. The tide always controlled the movement of the barges. They never took a barge away when it was running strong ebb or strong flood, for fear of damaging something. I have frequently seen barges which had considerable, but not sufficient coal to continue coaling the vessel until the next tide, removed in order to take advantage of the tide.

Q. That was a common occurrence, was it not?

A. Whenever they wanted the barge, they took it, whether it had more or less coal in it.

Q. You don't understand me. Have you not frequently seen barges that were partially filled with coal, taken away from the side of the ship, in order to take advantage of the tide? A. Yes.

Q. When there was not sufficient coal in that barge to continue coaling until the next tide?

A. No, not on account of the tide, but on account of the fact she did not have enough coal in to finish coaling the ship—they took her away and took her

(Testimony of Symmes H. Hunt.)

down to the bunkers and loaded her up again, and another barge would come in.

Q. Now, then, didn't it occur to you that probably that barge would not have been taken away but for the fact that it was to take advantage of the tide?

A. No, not necessarily, at all.

Q. Why would they take the barge away before taking all of the coal out of her, that was in her, if the ship still needed coal?

A. She did not have enough coal to finish coaling the ship; there was another barge ready to come in, and the tide was exactly right to be taken in, and another one ready to go in. [1967—1899]

Between the first of September, 1912, and the first of February, 1913, I was stationed on the barges near the Pacific Mail liners perhaps at least once or twice in each week during the time vessels were coaling. I was there in the performance of my duties as a customs inspector.

**[Testimony of Robert Sass, for the Government
(Recalled in Rebuttal).]**

ROBERT SASS, a witness recalled for the United States in rebuttal, testified as follows:

Direct Examination by Mr. ROCHE.

I was, as I have testified heretofore, hoist engineer on the barges. Sometimes I have seen a barge removed from a liner without being cleaned out of coal, but more often the barges would be cleaned out. When the barges were not cleaned out a few tons of coal would be left located in both ends of the barge

(Testimony of Robert Sass.)

and a little around the wings. The more frequent occurrence was that the barge would be cleaned out before she would be moved from the side of the liner. That coal was practically always there and never removed.

Cross-examination by Mr. McCUTCHEN.

Mr. McCUTCHEN.—Q. Were those barges removed with reference to the tide?

A. You have got to move them to suit the tide.

Q. You have got to move them to suit the tide?

A. Yes.

Q. Suppose a barge had been cleaned out to such an extent and the tide was favorable for her removal, and she did not have coal enough to continue coaling the steamer until the next tide, would she be moved with that coal in her?

A. I have seen times that they stopped working and got another barge, and they waited until the time suited to bring the barge out.

Q. Do you know whether, if the time came when it was favorable [1968—1900] to remove a barge to the bunkers, and she had not coal enough to continue coaling the vessel until the next tide, would they not always take her over to the bunkers with that coal in her?

A. Well, occasionally they took her and put more coal in her.

Q. Was not that the uniform practice?

A. I don't know what you mean, Mr. McCutchen.

Q. Was not that invariably done, was that not always done, in order to take advantage of the tide?

(Testimony of Robert Sass.)

Mr. ROCHE.—That the barge would not be cleaned out.

Mr. McCUTCHEN.—That the barge would not be cleaned out. Was not that always done to take advantage of the tide?

A. Lots of times the barge is brought alongside and cleaned out, and they don't do any more work until the tide is suitable to bring another barge up.

Q. Then you say that if a barge did not have coal enough on her to continue coaling the ship until the next tide, they would stop, they would clean her out and leave her and not be able to bring another in?

A. Until they brought up another, till the next tide was suited to bring her.

Q. So that there would be an interval of several hours when no coal was delivered to the ship at all?

A. Yes.

Q. How often did you see that done?

A. I have seen it a few times.

Q. How many times during the course of your employment with the Western Fuel Company?

A. I don't know how many times.

Q. During that three or four hours the men would be idle on the barge and no coal would be delivered to the ship?

A. The time was stopped, they did not work.

Q. But the coaling of the ship was delayed for that length of time, was it? A. Yes. [1969—1901]

Redirect Examination by Mr. ROCHE.

Mr. ROCHE.—Q. Let me ask you this question: Didn't it frequently occur that while a barge was

(Testimony of Robert Sass.)

being unloaded and just before she was cleaned out, that there would be another barge lying alongside of her to take her place? A. That happened, too.

* * * * *

Mr. ROCHE.—Q. Now, let me ask this question, Mr. Sass: Were the barges at all affected by the tide inside of the end of the pier line?

Mr. McCUTCHEN.—That is the only place where the steamers were coaling.

Mr. STANLEY MOORE.—If they got out in the stream, of course they would be affected by the tides.

A. Well, I have seen it a couple of times, yes, that the barge would jam between the steamer and the dock, and they could not move her.

**[Testimony of Jim Balestra, for the Government
(Recalled in Rebuttal).]**

JIM BALESTRA, a witness recalled for the United States in rebuttal, testified as follows:

Direct Examination by Mr. ROCHE.

When I was working as a shoveler in the barges operated by the Western Fuel Company, we would clean out the barges four times out of five. I mean to say that we would clean them out except for a little coal around the edges and at both ends, amounting to perhaps a ton or two. It sometimes happened, but not very often, that a barge still containing a part of a cargo of coal would be taken away from a liner and brought over to the bunkers to be refilled.

(Testimony of Jim Balestra.)

[Endorsed]: Filed Jan. 19, 1915. W. B. Maling, Clerk. By C. W. Calbreath, Deputy Clerk. [1970—1902]

Cross-examination by Mr. McCUTCHEN.

In answer to the question whether I have talked with anybody about this case since I left the stand before, I would say that I had an interview with Mr. Enlow yesterday at Millbrae. Sometimes they would have to delay the moving of barges on account of the tide. The barges are moved on a certain tide; that is, when the current was not too strong for the tow boat to take them around. I could not say whether they were moved on slack water. Sometimes, but not very often, if a barge was coaling a liner and slack water came and the hatch-tender saw he would not have enough coal to continue coaling the ship until the next slack water, he would move the barges over to the bunkers with that coal in them. As a rule, though, we would clean four barges out of five. At times the tide would interfere with moving the barges, but that was only a matter of two or three hours. I don't remember that a barge was ever taken away in order to take advantage of the conditions of the tide or the water. I have seen barges taken away with 100 or 200 tons of coal in them, but not before the coaling of the ship was finished. In fact, I never saw a barge taken away with coal in her before the coaling was finished.

Redirect Examination by Mr. ROCHE.

It frequently occurred that when a barge would completely coal a ship, the barge still had coal in her

(Testimony of Jim Balestra.)

to the amount of several hundred tons. [1971—1903]

[**Testimony of George W. Brown, for the Government (Recalled in Rebuttal).**]

GEORGE W. BROWN, a witness recalled for the United States in rebuttal, testified as follows:

Direct Examination by Mr. ROCHE.

I am at present in charge of the Naval Coaling Station at Tiburon, and have resided there about 8 years. I have been in charge of the station about nine months. Before that time I was assistant to the naval officer in charge. During the year 1911 a pile of coal which had been previously located at the Naval Station was practically all checked out. The first coal that went into that pile was received about May or June, 1908. I had supervision over the discharge of the coal at that station between 1908 and 1911. I also had supervision over the weighing of the coal from off the colliers, in which it was brought to Tiburon, into the war vessels. The coal discharged from the colliers was weighed upon an even beam, and it was also checked out of this pile on an even beam. The coal was steam coal. I should say that it consisted as to about 80 per cent of fines. Some of that coal was discharged from colliers over-side and laden into war vessels. I am speaking without reference now to records, but I refreshed my recollection from the records before I came here. The amount of coal checked out of the colliers between the time when we first commenced to form that pile in 1908 and the cleanup in 1911 was about 114,000

(Testimony of George W. Brown.)

tons. Approximately 31,000 tons were checked directly from colliers into war vessels, so that the remainder, substantially 83,000 tons, went into the pile. The cleanup was in April, 1911. The pile was surrounded by a bulkhead 100 feet wide and 640 feet long, on top of which was a bunker occupying the middle 30 feet [1972—1904] of the length. The bunker was not covered and the coal was exposed to the weather. I am familiar, and have been for a long time, with the cubic contents of a ton of coal. I have weighed coal out of that bunker and weighed it into that bunker for years, and I know the bunker and its contents thoroughly. According to actual weight, all but 740 tons of coal were checked out of that bunker at the time of the cleanup in April, 1911; that is to say, the books showed the amount of coal received in excess of the amount of coal issued to be 740 tons. As a matter of fact, the quantity of coal which actually remained on hand in 1911 was from 200 to 400 tons in excess of 740, so that there was an overage not exceeding 400 tons.

Cross-examination by Mr. McCUTCHEN.

The delivery of that coal began in June, 1908. The pile was 640 feet long and 100 feet wide; the depth varied. At 20 feet depth, the quantity of coal on hand was approximately 25,000 tons. The largest quantity of coal we had on hand at any one time was about 27,000 or 28,000. The smallest quantity on hand at the date mentioned in April was 740 tons by the books with 200 to 400 tons excess. That would have covered that area to a very slight depth. There

(Testimony of George W. Brown.)

were no times when we had such a small quantity as 1500 or 2000 tons only on hand. This coal was all delivered over a period of three years, beginning in 1908 and ending in 1911. The deliveries were made practically uniformly through the year, in the winter as well as the summer. We got coal in full cargoes, running to 5,000 and odd tons, but the first 8 or 10 cargoes were broken, and would, therefore, contain less coal. The character of the coal was [1973—1905] semi-bituminous from Virginia and West Virginia. Thirty feet of the floor of the bunker was a wooden incline; the balance was concrete. When the coal was delivered to us it was weighed by a laborer detailed from the force. As a rule I was not present at the weighing, nor was the Government represented by anyone excepting the laborer. The coal thus taken inshore was all weighed in cars of approximately four tons each, and every car was weighed. About 31,000 tons were weighed overside by a system of averages, weighing an occasional bucket. I was not personally in charge of that operation either, but there was usually a man of higher rank than a laborer in supervision. This was not dutiable coal. No definite number of buckets were weighed in the case of the coal weighed overside, but the instructions were in general, and so far as practicable, to weigh a tenth. I, myself, made an estimate of the coal on hand which I have said showed an overage of 200 to 400 tons, and at that time there were in the bunker from 940 to 1140 tons. The coal was weighed out in the same cars. The majority of

(Testimony of George W. Brown.)

it was delivered to war vessels. It had already been paid for by the War Department, and belonged to that department at the time of its delivery. Neither of these weighings were for the purpose of ascertaining the amount of duty on the coal or the amount to be paid for the coal.

At this point, counsel for the prosecution directed the attention of the jury to the overrun of the barge "Melrose" upon the 12th day of December, 1911, being the occasion upon which the witness, Montell, according to his testimony, made a search of that barge.

Mr. ROCHE.—"Under the date of December 12, 1911, appears the following: 'Melrose,' which shows there was deposited into the [1974—1906] 'Siberia' 1107 tons, 1519 pounds; over, 139 tons, 29 pounds."

**[Testimony of Edward Powers, for the Government
(Recalled in Rebuttal).]**

EDWARD POWERS, a witness recalled for the United States in rebuttal, testified as follows:

Direct Examination by Mr. ROCHE.

During the time that I was acting as Assistant Dock Superintendent, the barges of the Western Fuel Company were actually cleaned of coal at least 75 per cent of the time. I personally attended to and directed the movement of those barges. It frequently happened that two barges would be coaling a Pacific Mail liner and that there would not be a sufficient quantity of coal on those barges to complete

(Testimony of Edward Powers.)

the coaling of that liner. Before any other barges would be brought to the liner, however, those two barges would be emptied to within a few scattered tubs. If we could take up a full tub, we would send it up; otherwise, we would let the coal lie there. It often occurred that a barge containing a large quantity of coal would finish the coaling of a vessel and be sent over to the other bunkers and receive more coal.

At the time when I terminated my connection with the Western Fuel Company, in June, 1911, Mr. Mills had been absent less than two months. I had had headaches and trouble with my eyes at the time and with my tonsils and throat. After Mr. Mills became sick, I continued to perform my duties until toward the end of June. I was away for a time before Mr. Mills returned, because I had to go to the German Hospital to have an operation performed on my nose and to have my tonsils removed. I was at the hospital two or three days, and then I was confined to my home for four or five days more, although I went out occasionally. The defendant, James B. Smith, knew that I was ill, and he must have known also [1975—1907] that I had been in the German Hospital, because, when I came back, he said, "You are a hell of an Irishman to go to a German Hospital." He made that remark in the Mission Street office. I told Mr. Mills when he went away that I wanted to be away and have an operation performed, but he said he was worse than I was. When I returned from my operation Mr. Mills had already returned to work.

(Testimony of Edward Powers.)

I visited Mr. Mills' home in Alameda several times during his illness and took over trimming money to him.

Cross-examination by Mr. STANLEY MOORE.

Mr. STANLEY MOORE.—Q. You have testified today about the barges being cleaned up? A. Yes.

Q. Do you recall being questioned in regard to that at any time previously to this?

A. Not that I recollect, no, sir.

Q. Have you no recollection of Mr. Roche in the course of his redirect examination on the occasion of your being here as a witness before asking you with respect to that? A. Not that I remember.

Q. Well, I want to ask you, in speaking of clean-ups, and whether all the coal was taken off the barges, or not, if these questions were not asked of you, and these answers given by you, reading from 1972 of the record:

“Q. A quantity of coal would be put upon a barge and that coal taken over to a boat and discharged into the boat and a cleanup would occur?

A. Yes.

Mr. ROCHE.—Q. That sometimes occurred?

A. Yes.

Q. And it is also true, is it not, Mr. Powers, that in those instances where a quantity of coal would be taken upon the barge [1976—1908] and a barge taken over and discharged into a boat or boats of the Pacific Mail Steamship Company or some other line, or that line and some other line, that a cleanup would occur—in other

(Testimony of Edward Powers.)

words, all of the coal on the barge would be taken off? A. Sometimes."

The WITNESS.—Mr. Moore, will you allow me to answer it? During one year—

Q. Answer the question, did you so testify?

A. Yes, I said that.

Q. Do you recall those questions being asked you and those answers being made by you? A. Yes.

Q. Did you not then understand the question asked of you as to whether or not in the event of those clean-ups occurring that then all of the coal would have been taken off the barge?

A. Well, what I meant by all the coal, Mr. Moore, was all the coal we could get out.

Q. You can answer that, Mr. Powers, and then explain. A. Yes, sir.

Mr. ROCHE.—Q. Now go ahead and explain.

A. During one year there when all Australian coal was coming here we very rarely emptied the barges.

Mr. STANLEY MOORE.—Q. Did you say there one year?

A. No, the question was not asked me; if it was asked me I would have answered it.

Q. He asked you the question and referred to all the coal being cleaned off the barge; he didn't ask you as to one year. A. He asked me generally.

* * * * *

Q. Didn't you answer me just a moment ago that that question as you understood it to be asked of you was asking you generally?

A. Yes, generally speaking. [1977—1909]

(Testimony of Edward Powers.)

Q. Not as to particular transactions, but was asked generally?

A. Yes. That was one year in about 10.

Q. And you answered, did you not, sometimes?

A. Yes, sometimes. The books show that Mr. Moore, the books themselves show it.

Mr. STANLEY MOORE.—Q. Now at the time of severing your relations with the Western Fuel Company, or Mr. Mills severing your relations with that company, whichever case it might have been, do you remember saying anything to Mr. Foran, the Assistant Treasurer, about getting even with James B. Smith?

A. No, sir, and I don't think Mr. Foran will say such a thing.

Q. Is it not a fact, Mr. Powers, that in the month of July, 1911, and along toward the middle of the month, and after you had asked to see Mr. Smith and Mr. Foran had told you that it was useless to discuss it, that you said to him, "All right, I'll get even with Smith," speaking of him as "Smith," "if it takes me a lifetime"?

A. No, sir, I absolutely did not say such a thing to Mr. Foran.

Q. And didn't Mr. Foran say to you, "You ought not to talk that way," and didn't you repeat that statement and leave the office muttering?

A. No, sir. Mr. Foran indited a letter to his stenographer which I copied and sent to Mr. Smith.

Q. Just a minute.

A. You wanted to know the conversation with Mr.

(Testimony of Edward Powers.)

Foran and I am telling it to you.

Q. I am asking you if you had that conversation?

A. No, sir, I made no threat against Mr. Smith because I have absolutely nothing against Mr. Smith at all; my trouble is with Mr. Mills. [1978—1910]

Q. You have been in daily attendance upon this trial ever since you were called as a witness here before, have you not? A. I have.

Q. And you have listened to the testimony of almost every witness who has been put upon the stand?

A. No, sir; you know when I was ordered to leave the courtroom.

Q. But didn't you stand there at the door, with the door partly open, and listen to the testimony of the witnesses?

A. No, sir, I did not. I looked in to see who was on the stand. Just go down there yourself and see if you can hear from there what is said up here.

Q. I am just asking you the question?

A. I looked in the door dozens of times, I admit that.

Q. You were present in the courtroom the day the jury went down to see the bunkers, were you not?

A. No, sir, not in the courtroom—I was in the corridor.

Q. Don't you remember the occasion of one of the jurors asking whether experiments could be made and the engines run and the buckets dumped when they were half or three-quarters full?

Mr. ROCHE.—That is objected to, may it please

(Testimony of Edward Powers.)

the Court, as being immaterial and not proper cross-examination.

The COURT.—What is the purpose of it?

Mr. STANLEY MOORE.—I just wanted to show his interest and his activity and his volunteering to do these things.

The COURT.—Proceed.

Mr. STANLEY MOORE.—Q. Wasn't there some discussion then by Mr. Sullivan as to who should run the buckets, and that they would object to the employees of the Western Fuel Company?

A. I was not in the courtroom at the time, Mr. Moore.

Q. Well, outside of the courtroom, did you hear any discussion [1979—1911] of that kind?

A. I heard something about it going down to the bunkers.

Q. And did you hear some talk about the dumping of buckets, or the hoisting of buckets?

A. Yes, I heard that, and I also heard that they were testing the tubs out the night before, whether they would dump with half full or three-quarters full or a quarter full, and all that.

Q. And did you give the information to Mr. Roche about the "Wellington" being brought in from the stream at half past 3 in the morning?

A. No, but I told Mr. Roche—he misunderstood me—I told him I had heard that the barge "Wellington" was brought in at half past 3 the afternoon before.

Q. It was you who gave him the information, was it? A. Yes, I gave him the information.

(Testimony of Edward Powers.)

Q. Now, confining yourself to the questions, if you can, and trying to limit your answers to them, didn't you say when the discussion came up as to who would run those engines, didn't you say, "I'll run them"? A. I volunteered to run them, yes.

Redirect Examination by Mr. ROCHE.

After I had testified as a witness in this case, I requested the Government officials to permit me to depart, but I have been held here by subpoena right up to this very moment, excepting one afternoon when I was let off until four o'clock. I am under subpoena now.

Q. I want to call your attention to the testimony that was read to you by Mr. Moore, and to a part of the testimony that [1980—1912] Mr. Moore did not read, reading from page 1972, so as to show what we were referring to:

"Q. Now, it frequently happened, did it not, or sometimes happened that a barge would be cleaned up within 2 or 3 days? A. Yes.

Q. In other words, that a quantity of coal would be put upon a barge and that coal taken over to a boat and discharged into the boat and a cleanup would occur? A. Yes.

Q. That sometimes occurred? A. Yes.

Q. And it is also true, is it not, Mr. Powers, that in those instances where a quantity of coal would be taken upon the barge and the barge taken over and discharged into a boat or boats of the Pacific Mail Steamship Company, or some other line or that line and some other line, that a

(Testimony of Edward Powers.)

cleanup would occur; in other words, all of the coal of the barge would be taken off?

A. Sometimes.

Q. Sometimes; and it is a fact, is it not, that in almost every instance where that occurred, where coal was put into the barge and taken out within 2 or 3 days, or within a day or two, and a cleanup would occur, that there would be an overage? A. Yes."

You remember that testimony, do you not?

A. I do.

Q. And you remember now, do you not, in view of the fact that I have read it to you, that it did refer to those instances—

Mr. STANLEY MOORE.—Oh, we object to that, your Honor; he is trying to impeach his own witness inside of 15 minutes.

The COURT.—The testimony speaks for itself.

THEREUPON, counsel for the prosecution announced the conclusion of their testimony in rebuttal and rested. [1981—1913]

[Testimony of Frank J. Foran, for Defendants (in Sur-rebuttal).]

FRANK J. FORAN, a witness called for the defendants in sur-rebuttal and sworn, testified as follows:

Direct Examination by Mr. STANLEY MOORE.

I reside in Oakland. I am Assistant Treasurer of the Western Fuel Company, and have been such for about 8 years. I am acquainted with Mr. Edward Powers.

(Testimony of Frank J. Foran.)

Q. Do you recall a conversation with Mr. Edward Powers in the office of the Fuel Company in this city about the middle of July, 1911, in which after stating to him that Mr. Smith would not see him, or that there was no use of discussing the matter with him, he said that that was all right and that he would get even with Smith if it took him a lifetime, and that you spoke to him and said that he should not talk like that, and he repeated the remark and then left the office muttering to himself. Do you recall that?

A. I recall it very distinctly, yes, sir.

Cross-examination by Mr. SULLIVAN.

Nobody else was present at the time. The conversation took place about half past ten in the morning. The stenographer was present for a part of the time. I do not think she was present at the time this statement was made. She is not now in the employ of the company. She left in April of last year. I have an office of my own. I did not on that day, when Eddie Powers was there, dictate a letter to her concerning Eddie Powers. I dictated a letter of recommendation at one time, but it was prior to that occasion. I dictated no letter recommending Eddie Powers on this occasion. It was about three days before and [1982—1914] after Mr. Mills had discharged Eddie Powers. I cannot fix the date on which I wrote that letter. I think it was about the 15th of July that the conversation took place, but I am not sure. I spoke to Mr. Smith about the conversation some months afterward and long before the commencement of this trial. Mr. Smith never told me

(Testimony of Frank J. Foran.)

that he had Eddie Powers go to the office of his attorneys for the purpose of making a statement. I spoke to the attorneys of Mr. Smith about this conversation before the trial commenced on December 9th. I recall from having read the papers that Eddie Powers testified as a witness in this case about a month or so ago, and I think it was before that date that I told Mr. Smith about this conversation in which dire threats had been made by Powers against Mr. Smith.

THEREUPON, counsel for the defendants announced the conclusion of their testimony in sur-rebuttal and rested.

(Before the commencement of the arguments in this case, the dock-book or diary kept by the defendant, Mills, for the year 1903 was offered in evidence, counsel for the prosecution making no objection thereto upon the ground that the offer was too late or that the proper foundation had not been laid. The Court then overruled the objection that said dock-book or diary was immaterial and admitted the same in evidence. Said diary was thereupon marked Defendants' Exhibit "TT.")

The above and foregoing (including therein, also, all exhibits which, are by that certain stipulation of the parties and order of the Court hereinafter recited, transmitted in the original to the Circuit Court of Appeals for the Ninth Circuit, and by said stipulation and order made a part hereof in all respects as though incorporated at large herein) contains all [1983—1915] of the evidence of any and every

character given upon the entire trial of this cause and all of the proceedings thus far had upon said trial.

Thereupon, the opening argument for the prosecution was made by Theodore J. Roche, Esq., in the course of and as a part of which argument to and in the presence of the jury, he made the following statements:

[Extract from Opening Argument of Mr. Theodore J. Roche, for Plaintiff.]

“Gentlemen of the jury, we represent the majesty of the law of these United States, and it is proper for me at this time to tell you exactly what the attitude of this Government is. The Government in this case tells you, gentlemen of the jury, that upon the testimony that has come in during the trial of this case there cannot be any question at all about the guilt of these defendants, and the Government in this case insists upon the testimony that has come before you, gentlemen of the jury, that you in the performance of your duty bring in a verdict of guilty and we say to you, gentlemen of the jury, without hesitation, that if upon the testimony which has been taken an acquittal should result, that that result will unquestionably be an absolute miscarriage of justice; and that it will be futile for the Government in a case such as this at any time in the future to attempt to convict the officials of a wealthy corporation for defrauding other concerns which are defrauded by reason of the frauds committed against the Government itself. * * *

During the month of August, 1912, Dave Powers,

who had at that time just left the county jail in Alameda, where he had expiated an offense similar in kind to one of the offenses committed by the officials of this company, only he was not backed up by a [1984—1916] million dollars worth of business, went down to one of the officials of the Pacific Mail Steamship, etc. * * *

David Powers finally went down to one of his friends who was connected with one of the newspapers in San Francisco, told him what his situation was, told him then, gentlemen of the jury, some of the facts which have been put in evidence, and which by the way at that time was a public scandal, smelling to the high Heavens, and finally was advised by him, when he told him that he was in fear of being brought before the Grand Jury, that it was his duty to go down and tell the United States Government officials exactly what he knew about these frauds. * * *

Why the prosecution in this case has no axe to grind, and it has no desire to prosecute innocent individuals. The Government in this case concluded that the men were guilty and hence this prosecution. This great Government of ours, your Government as well as mine, gentlemen of the jury, is not in the business of suborning witnesses to commit perjury, or trying to bring about the conviction of innocent officials as a result of or upon perjured testimony. * * *

Now it has again been said, gentlemen of the jury, that the percentage of shortage and overage is so small that the Western Fuel Company would not attempt to defraud these overages. I say to you, gen-

tllemen of the jury, that this general percentage, the annual percentage, as well as the general percentage, is not a controlling factor in this case. * * *

It has been claimed here time and time and time again that the amount out of which the Government claims it was defrauded amounts to only \$45,000 or thereabouts; \$45,000 to this million dollar corporation counsel for the defendants say is a very small amount of money. Why, this immense corporation, gentlemen, doing more than a million dollars of business a year in foreign [1985—1917] coal alone, paying its dividends of 10 per cent a year, having a plant, gentlemen of the jury, which still is of the same value, if not a greater value at this time than it had at the time it was purchased, although according to the financial reports received here in evidence, they have marked off each year 25 cents a ton for depreciation, they say that this great big corporation would not stoop so low as to defraud the United States Government out of \$45,000. Why, I am willing, gentlemen of the jury, to admit that the Western Fuel Company did not, nor did any of its officials enter into this conspiracy and do those things for the sole and exclusive purpose of defrauding the United States Government out of \$45,000. But is there anyone within the range of my voice that believes for a single moment, that that was the purpose, the sole purpose, the exclusive purpose of this conspiracy. Why, don't you know, gentlemen of the jury, that every time they defrauded the United States Government out of 65 cents representing drawbacks, or 45 cents under the last Tariff Act, they were de-

frauding the Pacific Mail Company and other companies running American vessels foreign bound out of the value of a ton of coal? Don't you know, gentlemen of the jury, that their defrauding of the United States was only a part of the conspiracy into which the officials of the Western Fuel Company entered? Don't you know, gentlemen of the jury, that the object of this conspiracy, gigantic as it was, was not alone to defraud the United States Government, but was for the purpose of defrauding these ship-owners out of the value of coal with which they were charged, and which in fact they never received? Don't you know, gentlemen of the jury, that it was for the purpose of defrauding the United States Government out of coal which was supposed to be laden upon our transports, transports, gentlemen of the jury, engaged in protecting [1986—1918] the lives and property of these United States, and upon other Government vessels? Don't you know that the conspiracy was laid for the purpose, among other things, of defrauding the United States Government out of import duties and defrauding the United States Government out of drawbacks, and likewise, gentlemen of the jury, of defrauding shipowners out of the freight to which they were otherwise entitled, and likewise, gentlemen of the jury, of defrauding the consignees of cargoes purchased and taken over by the Western Fuel Company, out of the value of coal represented by the shortage between the bill of lading and invoice weights and the out-turn weights, that \$45,000, gentlemen of the jury, is only an insignificant amount compared to the amount realized

by the officials of the Western Fuel Company as a result of the fraud perpetrated by them and by it against the United States Government and these other officials. Why, I can add up, gentlemen of the jury, and if I had time I would do it, moneys which, under the testimony in this case were illegally exacted by the Western Fuel Company, amounting upwards of three-quarters of a million dollars. And it is that three-quarters of a million dollars, gentlemen of the jury, that permitted the Western Fuel Company to pay 10 per cent dividends per year, and still at the end of 8 or 9 years, when they had practically paid for this plant, retain, gentlemen of the jury, a plant which today is worth just as much if not a great deal more than the amount for which it was originally purchased. So you see, gentlemen of the jury, that this small insignificant amount of \$45,000, a fabulous amount to a great many of us, but a very small amount to the Western Fuel Company and its active Vice-president and manager, etc. * * *

[1987—1919]

Don't you know, gentlemen of the jury, that this cry of big business, every time a Government official treads upon the toes of one of these officials, or employees of one of these large corporations,—has it come to pass, gentlemen of the jury, that an official connected with one of these large corporations can come into court and say "it is true that I have committed a fraud, it is true that I have sold 5 per cent more coal than the coal which we have received, but because that coal is only a small proportion of the great volume of business which we have done we

ought to be immune from punishment," and in fact immune from indictment? Has it come to pass, gentlemen of the jury, that a man in the position of the defendant James B. Smith can come into court, because he is connected with a large corporation doing a million dollars worth of business a year and make a defense of that kind, when at the same time if another man was not backed up by a million dollar corporation, by friends, by social connections, by affluence, he would have to come into court and plead guilty to this? Has the time arrived in this country, gentlemen of the jury, when there is one law for the rich and another law for the poor? Why, during the trial of this case, gentlemen of the jury, upon at least several of the occasions you yourself have witnessed unfortunates unprotected by half a dozen attorneys, come before his Honor upon the bench and plead guilty to conspiring against the laws of the United States, either by importing a small quantity of opium into this country, 5 or 10 or 15 lbs., or by attempting to counterfeit some of the moneys coined by the United States Government? Is it true that if one of these men had been doing a million dollars worth of business or was an employee of a million dollar corporation, that he could come into this court and say, "it is true that I have done these [1988—1920] things but I am not guilty because the value of the opium smuggled into this country or the money value of the coins which it is claimed that I counterfeit represent only a small percentage of the great volume of business that I have done"?

Dave Powers, gentlemen of the jury, was sent to

the county jail of Alameda County for bringing into the United States a small quantity of opium upon which either the duty had not been paid or the introduction into the United States of which was at that time prohibited; but of course, gentlemen of the jury, he was not a million dollar financier. He did not have a million dollar corporation behind him; he did not have million dollar friends to intercede for him; and therefore of course when he was brought into this courtroom he had to plead guilty. * * *

It is your sworn duty to return a verdict of guilty in this case irrespective of what the volume of business has been which from time to time has been done by the Western Fuel Company, and irrespective too, gentlemen of the jury, that some of the defendants in this case may be connected with a million dollar corporation, or that the amount out of which the United States Government has been defrauded represents only a small percentage of the volume of business done from time to time by this large corporation. * * *

So, in 1904, within one year after this great corporation commenced doing this million dollar volume of business, we find it ripping up and removing decking and planking, etc. * * *

They themselves have admitted, Mr. Olney, in an opening statement, and their paid advocates in the nature of experts on the stand, that you cannot have an overage exceeding 5 per cent from these barges upon any legitimate theory. * * *

The defendants in this case, not satisfied with bringing [1989—1921] here the President of the

Stanford University to testify as an expert, not satisfied with *bring* here Professor Folsom who said the only thing he knew about coal was that it was black and it would burn, going away back east to Illinois and to Ohio for the purpose of bringing here experts at an enormous and fabulous salary, etc. * * *

And I say to you in closing, gentlemen of the jury, just as I said to you in opening, that if there is any other verdict in this case excepting a verdict of guilty, and a verdict of guilty as to every defendant in this case, including the defendant Edward J. Smith, who did not testify concerning many facts attributed to him and which were within his knowledge, then I say to you, gentlemen of the jury, that the Government will conclude that a miscarriage of justice has followed.” * * *

Thereupon, the opening argument for the defendants was made by Stanley Moore, Esq.; and, next, thereafter, the closing argument for the defendants was made by Edward J. McCutchen, Esq.

And, then, the closing argument for the prosecution was made by Matthew I. Sullivan, Esq., in the course of and as a part of which argument he made the following statements to and in the presence of the jury:

[Extract from Closing Argument of Mr. Matthew I. Sullivan, for Plaintiff.]

“I was not at all surprised at the argument of the two gentlemen representing the defendants in this case. I have heard the same kind of argument many, many times during a period of over 30 years practice. It is the same kind of an argument that is always pro-

duced by counsel, well paid, representing wealthy and powerful clients. * * *

As usual, when counsel represents a powerful or wealthy corporation, Mr. Moore and Mr. McCutchen appealed to the constitution [1990—1922] and the laws of the country. They say that if you are influenced by the appeal of Mr. Roche, or the similar appeal of Mr. Sullivan, there is danger of the Government being undermined, there is danger of injustice being done. Every time I have heard that argument during the last thirty years or more, I have become indignant, because that is the style of oratory always resorted to by counsel representing the character of clients involved in this case. They say the law is made for the rich and the poor; we admit it. They say that the law should be administered alike to the rich and the poor; we admit it. They say that if it is not so administered, the interests of our country will totter and crumple. That is the language of Mr. Moore. Now, gentlemen, I don't believe in making an appeal to any jury, or to any court to find any man guilty or to inflict a penalty upon him because he happens to be a man of wealth, a man of affluence, a man of social position. But I do say that before any Court, or before any jury, no man, by reason of his wealth, or affluence or position in society should stand a better show of having a fairer trial than the poor man referred to by Mr. Moore, who may be a wandering fugitive from the mountains. * * *

Now, gentlemen of the jury, here are defendants, four of them, now—originally seven, represented by

seven of the leading lawyers of the State; admittedly this is a powerful and a wealthy corporation, a million-dollar corporation, as stated by Mr. Roche, because the concern is capitalized for that amount.

* * *

Now, gentlemen of the jury, that old, old chestnutty argument was repeated yesterday, and will be repeated until the crack of doom; it has been repeated ever since I attended court: Don't, gentlemen of the jury, convict these men because they are wealthy, don't convict them because they are powerful. That is their [1991—1923] argument.

* * *

Now, gentlemen of the jury, it is about as difficult for a criminally rich man to enter the penitentiary against his will as it is for a loaded camel to pass through the eye of a needle, and in that respect, and that only, there appears to be a distinction between the penitentiary and heaven. The jails are full of these wandering fugitives, to use the language of Mr. Moore; the jails are full of defendants who have violated the law; full of criminals who were not able to employ seven of the ablest lawyers in the country; full of men who had not the means to secure counsel and who could bring experts thousands of miles from their place of occupation to hoodwink and fool a jury into believing that black was white, and that white was no color at all.

Now, gentlemen of the jury, I stand by everything that Mr. Roche stated in his opening argument. I will not on his behalf, or on behalf of the Government, recant a single word uttered by him. He ex-

pressed his true convictions, as I am now expressing my true convictions concerning the defense in this case, and the manner of the defense and the facts of the case. * * *

But then, of course, they are corporation lawyers, they are honorable and high in their profession. Oh, they can do those things, but men like Roche and myself who have been battling all our lives for the cause of people not connected with corporations, are guilty of most reprehensible conduct because we present the facts, the plain unvarnished facts to the jury.

Now, when a man on the pay-roll of a defendant comes before a jury and testified to facts in support of the defense any jury *or* ordinary understanding is justified in viewing with caution the testimony which he gives. But the Government has produced [1992—1924] witnesses here all of whom are absolutely disinterested. Counsel for the defense would have you believe that this great Government is engaged in the business of suborning witnesses. They would have you believe that witness after witness was brought here into court and induced to perjure himself solely for the purpose of securing the conviction of men whom the defendants' counsel call innocent. Now, that is inconceivable, gentlemen. The Government of the United States or its representatives don't do that. They have not done it in this case and they wouldn't do it in any other case if they lived a thousand years. If there was any bribery or corruption in this case or suborning of testimony it must be on the side of the defense. The defendants are fighting

to save their names and to save themselves from punishment. The Government has no interest in this case excepting to see that the laws are enforced. It is not an agreeable duty on the part of the Government to prosecute men who violate the laws, but it is necessary to do so; *some must* do it; there is no pleasure in attorneys prosecuting men who are charged by the Government with the violation of its laws, but it is a duty that must be performed, and in this case Mr. Roche and I are performing our duty as best we know how. The Court itself takes no pleasure in imposing penalties upon men who are convicted of crime, but the Court must do it. If people committing crime are allowed to go free through pity or sympathy or bias or prejudice, why, gentlemen, in a very short time indeed you might as well open the jails and have none at all. Society's protection demands that people who violate the laws and defraud the Government shall be prosecuted and if guilty shall be punished, and we are simply acting as the agents of the Government in asking you to perform your duties as jurors and to see that these [1993—1925] defendants who have violated the laws meet with a verdict of guilty at your hands."

* * *

With reference to the difference between the invoice and bill-of-lading weights on importation, Mr. Sullivan said:

"Upon that particular charge there is no doubt in the mind of any man familiar with the evidence in this case that the defendants are guilty. There should not be any shortage," etc. * * *

“You can see very readily with coal selling at retail for \$10 a ton, 20,000 tons would amount to \$200,000.” * * *

“Did the Western Fuel Company take advantage of these opportunities? There is no doubt about it. Do you think that the Western Fuel Company or J. B. Smith would resist an opportunity of that kind? You heard J. B. Smith upon the stand make a declaration, and it shows his character. It is the only time in his examination where his instinct got the better of his reason. I asked him on cross-examination, do you remember the time the ‘Aztec’ was being loaded from the barge ‘Melrose’ and Captain Lindley of the ‘Aztec’ complained that the coal that you were offering reminded him of Telegraph Hill rocks; he complained that they were rocks and not coal; and that thereupon Eddie Powers took that barge away from that same ship, the ‘Aztec,’ and brought alongside the same ship another barge containing the identical kind of coal and that was put on board the ‘Aztec’? I said to Mr. Smith, ‘Don’t you remember that circumstance, and didn’t you say to Eddie Powers, ‘You are a damn-good man,’ and he laughed right out and said, ‘Well, I may have, I may have, and if he did that, he was’—and he laughed—he thought he was a good man, any man who can get the best of those fellows down there is a good man, and if he did that I say he is a good man, a first-class [1994—1926] man. That was a declaration made by him during his own examination, and showed his true character.

Here was a representative of the Pacific Mail

Steamship Company, entrusted with the duty of getting the proper kind of coal upon these liners which carried hundreds of people and transported thousands of people across the Pacific, complaining that he was getting inferior coal, getting a lot of rocks that would not burn and would not heat the furnace, and Mr. Smith sanctions this act of his own employee, allows that barge of rotten coal, bad, rocky coal, to be taken away and another barge of the same character of coal put alongside of the vessel and that coal put in the ship and that coal used for heating the boilers in the ship, and that coal charged for as first-class coal. He sanctions that. He thinks that is proper. He thinks it is damn smart, to use his own language.

Now, gentlemen, if a man is guilty of an act of that kind, transferring to one of these ocean liners carrying hundreds of men and women and children across the ocean, if he tolerates or instructs an act of that kind to be done, don't you think that he would allow these acts to be committed by Mr. Mills and Mr. Mayer, and his employees, and take the coal consigned to consignees, or to take the coal consigned to himself for the purpose of avoiding duties and allowing that coal, without being weighed, to drop down into the bunkers below the hoppers and to drop down into the open spaces between the tracks and between the tracks and the side of the bunker? A man who would commit and would admit the commission of the act which he admitted on the stand in relation to the "Aztec" is capable of committing every one of

these crimes charged against him in this indictment.

* * *

There was a shortage of 62,000 tons. Take the ordinary price [1995—1927] charged at retail by the Western Fuel Company; that would be about half a million dollars, at \$8 a ton, a little less than half a million dollars. Now, gentlemen, that money was dishonestly made. That coal did not naturally increase from the time it was transported from the mine up to the time it was sold. I don't care what these experts say. * * *

His reports (speaking of those of Mr. Powers, chief chemist of Santa Fe Railroad Co.) are adopted by Mr. Parr, himself, who has come 1000 miles or more to California to bamboozle the jury into the belief that coal will increase in weight while stored in a yard, instead of decreasing in weight. * * *

Anybody knows that if you pour a lot of water upon a matter more or less porous it is going to increase in weight. It was not necessary to pay this man a large sum of money to prove to you gentlemen that putting water in milk increases its volume, or putting water in coal will, at least for a short time, increase the weight of the coal. Everybody knows that. * * *

If the Government representatives had employed a man to make a test which showed the fact, and the Government representatives concealed the report made by that expert, if they kept it in their possession, and put him on the stand to testify to facts directly contrary to the facts which he knew existed, directly contrary to the facts developed by his own

experience, and by his own experiments, then the Government representatives would be entitled to all the abuse and all the denunciation heaped upon them by the high-priced lawyers who came before you to make such frivolous appeals. * * *

In the meantime, mind you, gentlemen, Professor Parr, the noted chemist and analyst of the United States, was working for \$25 a day and expenses paid." [1996—1928]

And, in speaking of Professor Somermeier, also, Mr. Sullivan said:

"Here are two of the most noted experts in the country, under pay from the defendants, and the defendants, most honorable men, through their counsel, most honorable men, go to an ignoramus (meaning Folsom) and ask him to analyze the coal, a man who knows no more about coal analysis than you or I, and he so admits. * * *

Now, gentlemen, little things of that kind show the absolute insincerity of the defense, and their high-priced learned lawyers who come before you and before courts denouncing representatives of the Government for unprofessional conduct. * * *

But if David Powers were everything he is painted to be, if Eddie Powers is everything he is depicted to be by the defense in this case, either of them is an infinitely better man than any one of those noted scientists. For coin! They are bought for money. Dave Powers has not been bought for money. Eddie Powers has not been bought for money. But they were bought for money to come here to perjure themselves and to fool a jury and to defraud the Govern-

ment. There is no question about that. Folsom, for his \$600 per month, knowing nothing about coal, comes before you and discourses learnedly about plats which he said he made; you believe that he prepared them himself; he discourses learnedly about tests and about analyses which he makes you believe he did himself. Parr takes the stand and under oath denies his written statement made long ago. He publishes books of instruction to the world, for the instruction of coal miners and coal dealers, and in these very books written not for high price payment, not for big payment, but for the instruction of the world, he comes here before this jury, and for \$25 a day and expenses paid, he perjures himself, contradicts the statements contained [1997—1929] in his published books and tries to fool everyone of you gentlemen into the belief that coal will increase a phenomenal extent in weight in 5 or 6 days.

Let them denounce Dave Powers, let them denounce Eddie Powers. But I would not give the little finger of Dave Powers for the whole carcass of a university graduate and professor who for the purpose of earning a few dollars comes before a court and misrepresents the facts and tries to fool the jury and to bamboozle the jury into believing things that are not so. * * *

Now, gentlemen, don't you think that defendants who would put these humbugs of experts on the stand, pay them princely salaries for the purpose of preventing the defendants from going to the state penitentiary, would for the sake of their own liberty, for the defense of their own case, bring before the

jury at least 4 or 5 or half a dozen of the several hundreds of shovellers who did the crooked work for the Western Fuel Company? * * *

Mr. Powers was put upon the stand first a month and a half ago. At that time he was not asked if he made this statement to Mr. Foran, that he would get J. B. Smith if it took it (him) all his lifetime. He was not asked the question at that time at all. And why? Because counsel knew that he never made any such statement, because in fact he never did.

* * *

The Pacific Mail Company is now being robbed annually of many thousands of dollars. It has been robbed by the Western Fuel Company during the last 6 or 7 years of over a quarter of a million dollars. There is no question about that. Between \$40,000 and \$50,000 a year. The books of the Western Fuel Company show that. Mr. Schwerin is the manager and vice-president of the company. On the Pacific Coast he is the Lord of the Pacific Mail. He must know that his company is being robbed, [1998—1930] because he is a man of intelligence.

* * *

Each one of you in response to questions propounded by me said that you would not by one jot or tittle be influenced by pity or sympathy for the defendants, or any of them, or pity or sympathy for the members of their families. Pity or sympathy have no place in the jury-box. You all swore positively that you would cast aside all feelings of sympathy and all feelings of pity. I believed you then and I believe now that when you return to the jury-

room you will follow the dictates of your conscience and your judgment, that you will keep your word and will not be influenced by pity or sympathy, and that after giving this case the consideration which it deserves I am satisfied that your verdict must be one of guilty against all of the defendants.”

At the close of the aforesaid arguments of respective counsel, the Court charged the jury as follows, and the following are all the instructions given by the Court to the jury:

[Instructions of the Court to the Jury.]

The COURT.—(Orally.) As charged in the indictment, the defendants, James B. Smith, F. C. Mills, E. H. Mayer, and Edward J. Smith, are accused of violating the provisions of Section 5440 of the Revised Statutes of the United States, which reads as follows:

“If two or more persons conspire either to commit any offense against the United States or to defraud the United States in any manner or for any purpose, and one or more of such parties do any act to effect the object of the conspiracy, each of the parties to such conspiracy shall be fined not more than ten thousand dollars or imprisoned not more than two years, or both.”

In the indictment returned by the Grand Jury within and for [1999—1931] the Northern District of California against the defendants, James B. Smith, F. C. Mills, E. H. Mayer, and Edward J. Smith, and upon which this case is predicated, it is charged that said defendants, on the 1st day of Janu-

ary, 1904, in the State and Northern District of California, did unlawfully, wilfully and feloniously enter into a conspiracy under the guise and name of the Western Fuel Company, a corporation, to defraud the United States of a large part of the import duties on coal imported and brought into the United States by said Western Fuel Company by itself and other persons, firms and corporations, from foreign countries for said Western Fuel Company, and to defraud the United States out of a large portion of the duties due to the United States on divers shiploads and cargoes of coal so imported by said Western Fuel Company and other persons, firms and corporations, coming into the Port of San Francisco, by making and causing to be made false weights and false and fraudulent returns of weights of such cargoes and importations of coal, and by further fraudulently weighing and causing to be weighed by themselves and by the Pacific Mail Steamship Company, a corporation, and by other persons and corporations whose names are to the Grand Jury unknown, and reported to the United States, the weights of all such importations of coal loaded from the bunkers and barges of said Western Fuel Company for fuel on board American registered vessels engaged in trade with foreign countries; and further to defraud the United States by making and causing to be made false returns of weights and entries of coal shipped and loaded aboard the transports of the United States Army Service and other Government ships purchasing coal at San Francisco Harbor.

In this connection the indictment charges that for the purpose of carrying out said conspiracy, combination and agreement [2000—1932] said defendants maintained on the docks, wharves and barges owned, operated, controlled and occupied by said Western Fuel Company and by said defendants at said port of San Francisco, scales and weights which were to be and were fraudulently manipulated by the defendants, to the end that said scales should record the weights of said coal desired by the defendants, and not the true weights of such coal placed thereon, and that said defendants did so manipulate said scales and weights, and the method of weighing thereon, so that said scales and weights did record the weights of coal desired by said defendants, and not the true weights of the coal so placed thereon.

It is further charged that for the purpose of carrying out such conspiracy, combination and agreement said defendants caused fraudulent affidavits and statements to be made by them, among others to the officers of the Government of the United States and to the Pacific Mail Steamship Company, a corporation which operates American registered vessels engaged in foreign trade, buying coal from said Western Fuel Company, for the purpose and to the end that said Pacific Mail Steamship Company should claim from the United States a greater rebate on the drawback of coal duties permitted where coal is loaded for fuel purposes upon American registered vessels engaged in foreign trade, than the true weight of said coal would permit said Pacific

Mail Steamship Company to claim, or was due to said Pacific Mail Steamship Company.

It is further alleged that said defendants caused all coal weighed in, on or about the scales upon which the coal handled by said Western Fuel Company was weighed, to be incorrectly measured and weighed, to the end and for the purpose that said defendants, acting under the name and guise of said Western Fuel [2001—1933] Company aforesaid, should receive the profit and gain to be made by such incorrect and fraudulent weight.

It is further alleged in said indictment that said conspiracy, combination, confederation and agreement was continuously in effect and operation and in process of execution by said defendants, and each of them, from said 1st day of January, 1904, to and including the 24th day of February, 1913.

In said indictment, it is further charged that in furtherance of said conspiracy, and to effect and accomplish the objects thereof, certain of said defendants committed certain acts. To this charge contained in the indictment the defendants on their arraignment pleaded not guilty, thus putting in issue every material allegation contained in said indictment against them.

The defendants are officers and employees of the Western Fuel Company. This Company, since 1902, has been engaged in importing foreign coal into this port and here storing and selling it. Among other persons to whom it sold coal were the owners of American vessels going to foreign ports

and purchasing coal for fuel for such vessels. The Western Fuel Company also sold coal to the United States for certain transports and revenue cutters and for a collier named the "Jupiter."

On the foreign coal imported into this port there was during the period covered by the the indictment an import duty payable to the United States. The indictment covers a period beginning January 1, 1904, and ending February 1, 1913. During the first part of this period the import duty on coal was sixty-seven cents a ton, and during the remainder of the period the duty was forty-five cents a ton.

During this same period the law provided for a drawback on coal loaded for fuel on American vessels going to foreign [2002—1934] parts. This drawback consisted in the United States allowing, or giving, not to the importer of the coal, but to the owner of such American vessel, the amount of the import duty which had been previously paid on the coal so loaded into such vessel for fuel purposes.

In brief, therefore, it is alleged that the defendants, James B. Smith, F. C. Mills, E. H. Mayer and Edward J. Smith, entered into a criminal conspiracy to effect the following purposes and objects, viz.:

1st. To defraud the United States Government out of import duties on coal imported and brought into the United States by said Western Fuel Company, by making and causing to be made false weights and false and fraudulent returns of weights of cargoes of foreign coal imported and brought into the United States by said Western Fuel

Company and by other persons, firms and corporations, and by falsely reporting and causing to be reported to the United States the weights of such portions of said foreign coal so imported into the United States, which were loaded from the bunkers and barges of said Western Fuel Company for fuel on board American registered vessels engaged in foreign trade; and

2d. To defraud the United States Government by making and causing to be made false returns of weights and entries of coal shipped and loaded aboard the transports of the United States Army Service and other Government ships purchasing coal at the harbor of San Francisco.

If the Government has established beyond a reasonable doubt that said defendants, or any two or more of them, entered into said conspiracy to defraud the United States Government either out of said import duties upon foreign coal imported by said Western Fuel Company into the United States, or by causing to be made [2003—1935] false returns, weights and entries of coal shipped and loaded aboard the transports of the United States Army Service, or other Government ships purchasing coal at San Francisco Harbor from said Western Fuel Company, and that the overt acts charged in the indictment, or some one or more of them, were performed for the purpose of carrying such conspiracy into effect, then I charge you that the Government has made out its case and as to such defendants so conspiring your verdict must be guilty of the charge contained in the indictment.

As to defendants Robert Bruce, Sidney V. Smith

and Joseph L. Schmidt, there is no evidence to substantiate the charge against them. You are therefore instructed to bring in a verdict of not guilty as to those defendants.

This leaves for your consideration and decision the case as to the defendants James B. Smith, Frederick C. Mills, E. H. Mayer and E. J. Smith, and the instructions given you concern the submission to you of the case as to these last-named defendants. The fact that I instruct you to bring in a verdict of not guilty as to the defendants Robert Bruce, Sidney V. Smith and Joseph L. Schmidt, and have not done so as to the defendants James B. Smith, Frederick C. Mills, E. H. Mayer and E. J. Smith must not influence you in the slightest in passing upon the guilt or innocence of the last-named defendants, or as any indication of my opinion as to their guilt or innocence. It is a matter to be entirely disregarded by you in passing upon the guilt or innocence of the last-named defendants.

It is the duty of the jury to give uniform consideration to all of the instructions herein given, and to consider the whole and every part of such instructions together, and to accept them as a correct statement of the law, and apply [2004—1936] the law thus given to the jury to the facts before it. The jury is the sole judge of the facts.

The defendants have pleaded not guilty and this plea puts in issue every allegation or element in the charge against them, and it becomes necessary for the prosecution to establish the truth of every allegation or element necessary to establish their guilt to a

moral certainty and beyond a reasonable doubt.

The opening statement made by the counsel on either side, and the promises or declarations made by such counsel during the opening statements, and during the trial of this case, are in no sense or manner to be accepted by you or considered as evidence.

The indictment against the defendants is a mere accusation and it is not any evidence whatever of the defendants' guilt, and you are not to be influenced to any extent against the defendants by reason of the finding, presentment or filing of the indictment against them.

The defendants James B. Smith, Frederick C. Mills, E. H. Mayer and E. J. Smith enter upon their trial with the presumption that each is an innocent man, and neither they, nor any one of them, is bound or required to prove themselves, or himself, innocent, or to explain suspicious circumstances. You should deliberate upon and consider this case having in mind always the legal presumption that each defendant is innocent of the crime with which he is charged in the indictment, and also innocent of the intent, or any intent, to commit the same, and you should act upon this presumption of innocence and lack of intent throughout your entire consideration of the evidence and until it shall have been overcome by evidence of guilt so strong and conclusive, as to convince your minds, and the mind of each one of you, to a moral certainty and beyond all reasonable doubt, that these defendants, [2005—1937] or some of them, are guilty of the crime with which they are charged.

The presumption that the defendants are innocent has the weight and effect of evidence in their behalf and it continues to operate in their favor until it is overcome by competent evidence.

This being a criminal cause or action there can be but one presumption, and that is that the defendants are innocent, and all disputable presumptions give way to this one presumption of innocence which belongs of right to the defendants and remains with them until the prosecution, by convincing proof, has established their guilt, or the guilt of some of them, to a moral certainty and beyond all reasonable doubt.

The burden, therefore, rests upon the prosecution to establish every element of the crime with which the defendants are charged, and every element of the crime must be established to a moral certainty, and beyond all reasonable doubt. If the prosecution fails to establish to a moral certainty and beyond all reasonable doubt any one element of the crime with which the defendants are charged and which it is necessary to establish in order to convict, or if there remains in the minds of the jurors a reasonable doubt as to whether or not the prosecution has established, as to any defendant, every element constituting the crime, to a moral certainty and beyond all reasonable doubt, then you must acquit such defendant.

The character of the evidence which would warrant a verdict in a civil case is different from that which is required by law to justify a conviction in a criminal case. A preponderance of evidence would be sufficient in a civil case, but it is wholly insufficient

in a criminal case. In a criminal case, in addition [2006—1938] to the preponderance of evidence, the law requires that the evidence shall be of such character and so clear and convincing that the jury, and each member thereof, shall be satisfied to a moral certainty and beyond all reasonable doubt that a defendant has committed the particular crime charged, before he can be convicted.

The term “reasonable doubt” is not a mere figure of speech, nor is it to be lightly looked upon by the jury. It is a substantial right given by the law that no person shall be convicted of any crime unless his guilt is proven beyond all reasonable doubt.

It is your duty under the law, therefore, to resolve all reasonable doubts in favor of the defendants in this case, and if two inferences can be drawn from a given act or circumstance, or any number of given acts or circumstances, one being that of guilt, and the other that of innocence, it is your duty to draw the inference of innocence and not that of guilt.

The reasonable doubt to which I refer such as will entitle the defendants to an acquittal need not necessarily arise out of or from the testimony itself, but it may be the result of, or may arise from, a want or lack of testimony sufficient to satisfy the mind.

Mere probabilities, much less possibilities, are not sufficient to warrant a conviction, nor is it sufficient that the greater weight or preponderance of the testimony supports the allegations of the indictment, nor is it sufficient that upon the doctrine of chances it is more probable that a defendant is guilty.

A conspiracy may be defined as a confederacy or

combination formed by two or more persons to effect an unlawful purpose, said persons acting under a common purpose to accomplish the unlawful end desired. [2007—1939]

While a conspiracy cannot exist without a guilty intent being there present in the minds of the conspirators, yet this does not mean that the parties must know that they are violating the statutes, or any statute, of the United States. The only question for you to pass upon in this connection is whether the defendants violated the law,—not whether they had any knowledge that they were violating the law.

Upon the question of intent on the part of the defendants, you are instructed that the law presumes that every person intends the natural and ordinary consequences of his act. Wrongful acts, knowingly or intentionally committed, cannot be justified on the ground of innocent intent. Ordinarily the intent with which a man does a criminal act is not proclaimed by him, and ordinarily there is no direct evidence from which the jury may be satisfied, from declarations of the criminal himself, as to what he intended when he did a certain act. And this question of intent, like all other questions of fact, is solely for the jury to determine from the evidence in the case. Generally, upon this subject of conspiracy, I instruct you that it is competent for you to consider all the facts developed in the case for the purpose of answering the question as to whether or not a conspiracy was in fact entered into between the parties named in the indictment, or any of them.

Your personal opinion as to facts not proven can-

not in any manner be considered or used by you as the basis of your verdict. You may believe as men that certain facts exist, but as jurors you can act only upon the evidence introduced upon this trial, and from that evidence and that alone, under the instructions of the Court, you must form your verdict.

The defendants are entitled to the independent judgment [2008—1940] of each juror who has been selected to try them. It is one of the fundamental principles of the laws of this country, that twelve men shall constitute a jury and that no man shall be convicted of an offense unless the judgment of each and all of such twelve men shall concur in the conviction that, beyond a reasonable doubt, he has been guilty of the offense charged in the indictment. If, therefore, any one or any number of you, after carefully deliberating upon the evidence, under the instructions of the Court, shall be of the opinion that the defendants have not been proven to be guilty by the evidence to a moral certainty and beyond a reasonable doubt, those entertaining that opinion should vote in favor of acquittal and should adhere to that opinion until convinced beyond a reasonable doubt that they are wrong, and should not be influenced by the mere fact that a majority of the jury differ from them in opinion.

But it is the duty of every juror to reason with his fellow jurors to the end that he may join in a lawful verdict and to discard any opinion he may have formed when he is convinced that such opinion is not justified by the evidence in the case.

The essential point of this case is not whether the

United States did not receive the full amount of duties to which it was entitled on coals imported by the Western Fuel Company, or whether the United States paid more in drawbacks than it should have paid, for this is not an action by the United States to recover duties which should have been paid to it but were not, or to recover drawbacks paid by it in excess of what was due. This is a criminal prosecution against the defendants, in which the charge is that they conspired to defraud the United States. The two essential points in the case are, therefore, conspiracy and fraud. Conspiracy, as stated, means knowingly and intentionally [2009—1941] uniting in a common design or purpose to accomplish an illegal object or legal object by illegal means; and fraud means an intentional cheating. The final question to be answered by you, accordingly, is, did the defendants, or some of them, unite, either as between themselves or with others, in a common design or purpose to intentionally cheat the United States either in the matter of import duties on coal or in the matter of drawbacks on coal? Unless the prosecution has proven to your satisfaction, beyond all reasonable doubt, both that the defendants, or some of them, did knowingly and intentionally, unite, either as between themselves, or with others, in a common design or purpose, and that that common design or purpose was to intentionally cheat the United States, your verdict should be “not guilty” as to all of the defendants.

The fact alone, therefore, if you find it to be the fact, that coal was imported by the Western Fuel Company, some of which escaped the payment of

duty, either because not properly weighed or because it got into the yards, bunkers, or barges of the Western Fuel Company in this port without being weighed at all, is not in and of itself sufficient to warrant a conviction of these defendants, or any of them, unless you find that such improper weighing, or such failure to weigh, was due to the fraudulent acts of defendants, or some of them and occurred so frequently as to warrant you in believing that such acts were the result of a conspiracy as charged.

Likewise, the fact alone, if it be a fact, that coal delivered by the Western Fuel Company by means of barges, either to American vessels going to foreign ports, or to Government vessels, was overweighed, and that by reason of such overweighing the United States paid more by way of drawbacks or [2010—1942] as the purchase price of the coal than it should, is not in and of itself sufficient to warrant the conviction of these defendants or any of them, unless you find as above stated that such overweighing was due to the fraudulent acts of defendants, or some of them, and occurred so frequently as to warrant you in believing that such acts were the result of a conspiracy as charged.

Nor are these two facts just mentioned, if you find them to be the facts, taken together, sufficient in and of themselves to warrant a conviction of any of the defendants. Whether any of the coal imported by the Western Fuel Company did or did not escape the payment of duty, or whether any of the coal loaded by the Western Fuel Company into American vessels going to foreign ports, or into Government

vessels, was or was not overweighed, you must in any case be satisfied beyond a reasonable doubt as to each defendant that he was a party with guilty knowledge or intent along with others to a common scheme or purpose to defraud the United States, or else as to such defendant your verdict must be "not guilty."

The defendants are not charged with defrauding the United States, but with conspiracy to defraud the United States. It is, therefore, not sufficient to warrant a conviction merely that it appears to your satisfaction, beyond a reasonable doubt, that the Government has in fact been defrauded or cheated; it must further appear that such defrauding or cheating was accomplished in the course of and as one of the purposes of a conspiracy to which any defendant you may find guilty was a party. By a conspiracy is meant a uniting in a common scheme or purpose, that is, there is meant essentially an agreement or understanding to accomplish an illegal object. Such agreement or understanding need not be actually expressed in words, either verbally or in writing. [2011—1943] It may be tacit. But there must exist in fact a wrongful agreement or understanding, knowingly and intentionally entered upon or continued with, in the course of the accomplishment of which the cheating and defrauding of the United States alleged here was either done or attempted to be done if in fact it was done or attempted to be done at all.

Accordingly, even if it should appear to your satisfaction, beyond a reasonable doubt, that an act, or

acts, of defrauding or cheating the United States have been committed by any particular defendant or defendants, the commission of such act or acts is not in and of itself sufficient to warrant a conviction of such defendant, or defendants, unless it also appear to your satisfaction, and beyond a reasonable doubt, that there was an agreement or understanding to accomplish such acts, to which understanding or agreement such defendant or defendants were parties.

I have said that the accusation is that the defendants were parties to a conspiracy to defraud the United States—that is, that they were knowingly and intentionally parties to a common design or purpose to that effect. The evidence tending to show such uniting in such common design or purpose is wholly indirect and circumstantial. Direct proof is not indispensable and a conspiracy may be shown by circumstances, but where the prosecution in a criminal case relies upon circumstantial evidence—that is, upon proof of acts and circumstances which are to be used as a means of arriving at the principal facts in question—it is a rule that these facts or circumstances must be fully proven in order to lay the basis for the conclusion which is sought to be established. Each circumstance essential to the conclusion must be proved to the same extent as if the [2012—1944] whole issue rested upon the proof of such essential circumstance. The burden of proof throughout is upon the prosecution to prove the guilt of the defendants. In a case depending upon circumstantial evidence alone the rule is, first, that the

hypothesis of delinquency or guilt of the offense charged in the indictment must flow naturally from the facts proven and be consistent and with them all, and, second, the facts proven must be such as to exclude every reasonable hypothesis or view but that of the guilt of the defendant of the offense imputed to him, or, in other words, the facts proven must all be consistent with the theory of guilt and inconsistent with the theory of innocence. Accordingly, before you would be justified in bringing in a verdict of guilty in this case, you must be satisfied, first, that the inference that there was a knowing and intentional uniting by the defendants, or some of them, in a common design or purpose to defraud the United States flows naturally from the facts proved and is consistent with them all, and, second, that the evidence must be such as to exclude every reasonable hypothesis or view except the one that the defendants, or some of them, did knowingly and intentionally unite in a common scheme or purpose to defraud the United States. As to any defendant as to whom you are not convinced beyond all reasonable doubt, after applying these rules to the evidence, that he was actually a party, knowingly and intentionally, to a scheme to defraud the United States, your verdict must be "not guilty."

But while it is necessary, in order to establish a conspiracy, to prove a combination of two or more persons by concerted action to accomplish the criminal or unlawful purpose or purposes alleged in the indictment, yet it is not necessary to prove that the parties ever came together and entered into any for-

mal agreement or arrangement between themselves to effect such purpose or [2013—1945] purposes; the combination or common design or object may be regarded as proved if the jury believe from the evidence beyond a reasonable doubt that the defendants were actually pursuing in concert the unlawful object stated in the indictment, whether acting separately or together by common or different means; providing all were leading to the same unlawful result.

It is not necessary, in order to establish the fact of conspiracy, to prove by direct evidence that the parties met and actually agreed to jointly undertake such criminal action. Evidence is indirect as well as direct, indirect evidence consisting of inferences and presumptions; and it is the law that upon the trial of a case evidence may be given of any facts from which the facts in issue are presumed or are logically inferable; and the jury, by the exercise of their judgment and reason, based upon a consideration of the usual propensities or passions of men, the course of business or the course of nature, may make such deductions or draw such inferences from the facts proven as will establish the ultimate fact or facts in issue.

A conspiracy can seldom be proved by direct testimony. Persons combining for the execution of a crime do not ordinarily expose themselves to public observation, and the fact of combination can, therefore, as a general rule, be established only by proof of the acts of the several parties in such combination, the relation of these acts to each other, and their tendency, by united effect, to produce the common

result. In other words, where the jury finds that the acts of the several parties charged with conspiracy are the co-ordinates of each other, and are for the consummation of the criminal purpose charged in the indictment as the object of the conspiracy, they are at liberty to find that the various parties performing these several and [2014—1946] respective acts were engaged in a conspiracy to commit the offense, although there may be no direct evidence whatever before the jury to show that such parties ever entered into any agreement to commit such offense.

A conspiracy may be proved by showing the acts and conduct of the conspirators. It is seldom possible to establish a specific understanding by direct agreement between parties to effect or accomplish an unlawful purpose. Usually, therefore, the evidence must necessarily be circumstantial in character and it will be sufficient if it leads to the conviction that such conspiracy in fact existed. Thus, if it be shown that the conspirators were apparently working to the same purpose—that is, one performing one part, and another, another part, each tending to the attainment of the same object so that in the end there was apparent concert of action, whether they were acting in the immediate presence of each other or not, it would afford proof of a conspiracy to effect that object.

It is as competent to prove an alleged conspiracy by circumstantial as by direct evidence. In prosecution for criminal conspiracy, the proof of the combination charged must almost always be extracted from the circumstances connected with the trans-

actions which form the subject of the accusation. The acts of the parties in the particular case, the nature of those acts, and the character of the transactions, or series of transactions, with the accompanying circumstances, as the evidence may disclose them, should be investigated and considered as the source from which evidence may be derived of the existence or non-existence of an agreement, which may be express or implied, to do an unlawful act. Guilty connection with the conspiracy may be established by showing association by the persons accused in and [2015—1947] for the purpose of the prosecution of the illegal object. Each party must be actuated by an intent to promote the common design, but each may perform separate acts or hold distinct relations in forwarding that design. There must be an intentional participation in the transaction or transactions with a view to the furtherance of the common design and purpose. If persons work together to achieve an unlawful scheme, having its promotion in view, and actuated by a common purpose of accomplishing the unlawful end, they are conspirators.

When a common purpose to prosecute an unlawful scheme has been shown beyond a reasonable doubt, the overt act or acts or declaration or declarations of any one or all concerned, in furtherance of and while engaged in the execution of such purpose, are admissible as illustrating the design and establishing the character of the original confederation. One who employs an agent to assist in the execution of a criminal act is equally guilty of the act of the per-

son employed as if he had himself performed it.

If you find from the evidence beyond a reasonable doubt that there existed a conspiracy between the defendants, J. B. Smith, F. C. Mills, E. H. Mayer and Edward J. Smith, or any two or more of them, to do all or any of the acts set forth in said indictment, you can then consider the acts and declarations of any of said defendants engaged in said conspiracy even though made out of the presence and hearing of the others, if such acts or declarations were performed and made during and in pursuance of said conspiracy and to effect the objects thereof, and the acts and declarations of any of said defendants engaged in said conspiracy, if so made, would then be as binding upon the other parties to the conspiracy as if they had performed [2016—1948] such act or acts or had made such declaration or declarations.

And if you believe from the evidence, beyond a reasonable doubt, that any particular one of the defendants was actually pursuing in concert with any other person the unlawful object stated in the indictment, even though he were not a party to the conspiracy at the time when the original conspiracy was formed, if you find that such conspiracy was formed, but that he was aware of the conspiracy when he committed any overt act or acts in pursuance of that unlawful object, and in concert with any of the original parties to the conspiracy, the charge of conspiracy is established against that defendant, and you must find him guilty.

But even if you should be convinced in this case

beyond all reasonable doubt that in certain particular instances coal imported by the Western Fuel Company was fraudulently weighed at its bunkers, or, through fraud, was put into its bunkers without being weighed at all and by such means escaped the payment of duty, such particular instances of fraud in and of themselves are not sufficient to justify a conviction of any defendant, if not done in pursuance of a conspiracy, even though you may also be satisfied that such defendant knowingly participated in such fraud.

Likewise, even if you should be convinced beyond all reasonable doubt that the coal was loaded into American vessels going to foreign ports, such, for instance, as the vessels of the Pacific Mail Steamship Company, and was fraudulently overweighed, so that the United States paid more in drawbacks thereon than it should have paid, yet such particular instances of fraud are not in and of themselves sufficient to justify a conviction of any defendant, even though you may be also satisfied that such defendant knowingly participated in such fraud, unless such participation [2017—1949] was had in pursuance of a conspiracy as charged.

The defendants are not on trial for defrauding the United States, but for conspiring to defraud the United States. Particular acts of fraud are, therefore, not sufficient of themselves to warrant a conviction. You must be convinced beyond all reasonable doubt that, in addition to any particular acts of fraud that were committed, if there were any so committed, there was in actual fact a conspiracy

to commit such fraud. Particular acts of fraud may, if the circumstances in your opinion warrant, be considered as evidence tending to show such conspiracy, but the inference that there was in reality a conspiracy must be so cogent and compelling when all of the evidence is considered as to convince you beyond a reasonable doubt that such conspiracy did actually and in fact exist, otherwise your verdict as to all of the defendants must be "not guilty."

The evidence introduced before you by the Government, if believed by you, is sufficient in legal effect, that is, in law, to sustain the conviction of the defendants, if from it you find the existence of the conspiracy charged, and the performance of the overt acts in pursuance thereof, but whether it is such as to satisfy you of its truth and establish the guilt of the defendants to the degree I have indicated is as I have already stated, a question solely for your consideration.

The Statute of Limitations in this case is three years. It is therefore incumbent upon the prosecution to prove to your satisfaction and beyond all reasonable doubt, both that within three years before the bringing of this indictment, that is, since February 27, 1910, a conspiracy has existed to which the defendants, or some of them, were parties; and [2018—1950] also that within the same time, that is, since February 27, 1910, some act was actually done to accomplish the purpose of such conspiracy. Much evidence has been admitted in this case on behalf of the prosecution of matters prior to February 27, 1910. Such evidence was admissible solely

for the purpose of showing thereby that a conspiracy did exist, but such evidence must not be given any further effect by you, and even if such evidence shows to your satisfaction and beyond a reasonable doubt that a conspiracy did exist at some or any time prior to February 27, 1910, to which the defendants, or some of them, were parties, yet the prosecution must also show affirmatively and to your satisfaction, beyond all reasonable doubt, both that such conspiracy has continued or been in existence at some time since February 27, 1910, and also that an act, or acts, designed to accomplish the purpose of such conspiracy, have likewise been actually done since that date. Otherwise your verdict as to all of the defendants must be "not guilty."

But if you believe from the evidence that on or about the first day of January, 1904, the defendants, or any of them, entered into the conspiracy alleged in the indictment, and that said conspiracy was actively and continuously pursued by said defendants and not brought to a culmination or end until within three years prior to the filing of the indictment in this case, and that within that period some overt act charged was performed for the purpose of carrying it into effect, then and in that event I charge you that the defendants so conspiring cannot successfully interpose the statute of limitations as a defense to the charge contained in the indictment.

The regulations of the Treasury Department of the United States provide that coal, on being imported, shall be weighed with a rising beam to ascertain the weight of the coal for [2019—1951] the deter-

mination of the duty on it. For any failure to get a true weight of the coal, due to this method of weighing, I charge you that the defendants are not responsible.

The United States weighers and the United States custom-house officials have the entire charge and direction of the weighing of imported coal and are solely responsible for it, and neither the Western Fuel Company nor any of the defendants were under any obligation to see that the coal was properly weighed. The legal obligation of the Western Fuel Company and the defendants was merely the negative one that neither it nor they should affirmatively and intentionally do anything to cause an inaccurate weighing, or the importation of coal without its being weighed at all.

Even if you should be convinced that coal on importation by the Western Fuel Company was not truly weighed, either because weighed on a rising beam, or because of lack of sufficient care on the part of the United States weighers, or because of inaccurate scales, or because of the scales getting out of order either by a part giving way, or in any other manner, or because of the use of a bent link between the cars, or because of the conditions under which the weighing went on, such, for instance, as the vibration of the Folsom Street bunkers, if such vibration existed, the United States, and not the defendants, is responsible for any failure to get the true weight of the coal due to such causes, provided only that the defendants did not affirmatively and intentionally bring such causes about, or assist such causes, or

fraudulently take advantage of them when once brought about.

Even if you should be convinced that some imported coal escaped weighing altogether because the method of unloading the coal was such that, as an incident of such method, some coal [2020—1952] might be knocked off the cars by beams, or otherwise, into the bunkers before being weighed, or might be spilled over the sides of the cars into the bunkers when the cars were being filled from the hoppers above the bunkers, yet the United States, and not the defendants, is responsible for such coal escaping weighing, provided only that the defendants did not affirmatively and intentionally cause such method of unloading to be adopted for the purpose of having the coal escape weighing, or did not conspire to utilize such method of weighing for that purpose.

The method of weighing the drawback coal pursued on the delivery of such coal from the Western Fuel Company's barges to vessels, namely, the weighing of an occasional tub, and the keeping tally of the tubs not weighed and averaging the weight of all by the weights of those weighed, is a method authorized by the United States Treasury regulations, and that for any inaccuracies in weights due to this method of weighing, or incidental to its practical operation, the defendants are in no wise responsible, provided they did nothing affirmatively in the manner of loading such tubs to bring about such inaccuracies.

The United States weighers and custom-house officials have the entire charge and direction of the weighing of drawback coal and are solely responsible

for it. It is a part of their duty, as prescribed by the U. S. Treasury regulations, to see that the tubs weighed are accurately weighed, and that all the tubs, both those weighed and those not weighed, are filled as nearly evenly full as possible. For the performance or nonperformance of these duties, or their efficient or inefficient performance, neither the Western Fuel Company nor any of the defendants were responsible. The legal obligation of the Western Fuel Company and the defendants was merely the negative one that neither it nor they should affirmatively and intentionally do anything to bring about an [2021—1953] inaccurate weighing of drawback coal, or overweighing of such coal.

The regulations of the Treasury Department of the United States require that at least one tub in every fifty must be weighed.

Even if you should find that the United States weighers or custom-house officials did not weigh accurately those tubs of drawback coal which were weighed, or that the tubs which they did weigh were sometimes, or generally, loaded more fully or with a greater weight of coal than those which were not weighed, yet neither the Western Fuel Company nor any of the defendants are responsible for such inaccurate weighing, or such over-weighing, or such over-weighing of the tubs, provided only that neither the Western Fuel Company nor the defendants did anything affirmatively and intentionally to bring about such inaccurate weighing or over-weighing, or over-weighing of the tubs.

The defendants are not responsible for any change

in the actual weight of coal, either increase or decrease, due to any cause whatsoever, natural or artificial, such for instance, as moisture by rain, or by artificial wetting, unless the defendants intentionally brought about such increase or decrease in weight for the purpose of defrauding the United States.

The United States Treasury regulations provide that United States weighers are required to return the actual weight as ascertained by them, and are not authorized to make any allowance for an increase of weight due to absorption of moisture.

The good character of a defendant, if established, becomes a fact in the case and is to be considered by you along with the all the other facts in the case. It is not to be set aside by the jury, to be considered by them after they have arrived at a verdict from the evidence independently of the fact of good character, but is to be considered along with all the other facts in [2022—1954] the case to determine whether the defendant, with his good character established, could be guilty of the crime charged. The good character of a defendant, when established, may of itself be sufficient to raise a reasonable doubt of his guilt, when, without such good character, the jury might not have any such doubt. In the absence of any testimony upon the subject, the law presumes that every person has a fair character.

A witness false in one part of his testimony is to be distrusted in other parts.

Where a defendant takes the witness-stand, his evidence is to be judged by the same rules which are applied to determining the credibility of any other

witness. That is, he is not to be discredited merely upon the ground that he is the defendant. You are to accord him the same fair and impartial consideration of his evidence, when viewed in the light of all the other facts in the case, as you would the testimony of a witness standing in any other relation to the case; but in passing upon the evidence of a defendant you have a right, precisely as with any other witness, to consider the interest he has in the result of the trial, and determine for yourselves how far that interest may have tended to color his evidence or cause him to deviate from the truth. You will understand from this merely that while there is no presumption against the truth of the evidence of a defendant any more than that of any other witness, nevertheless you are entitled to consider the interest he necessarily has in the result of the trial, and determine to what extent it may have tended to affect his testimony before you. If, when so tested by these rules, it does not accord with your reason as being true, then you are not required to believe it.

[2023—1955]

If you believe from the evidence beyond a reasonable doubt that the defendants in this case, James B. Smith, F. C. Mills, E. H. Mayer and Edward J. Smith, or any two or more of them, entered into a conspiracy to defraud the United States out of drawback duties by any of the methods set forth in said indictment, and that some one or more of the overt acts charged were performed for the purpose of carrying into effect such conspiracy, your verdict as to such defendants so conspiring must be guilty,

although you believe them not guilty of the other criminal acts charged against them in the indictment.

If you believe from the evidence beyond a reasonable doubt that the defendants in this case, James B. Smith, F. C. Mills, E. H. Mayer and Edward J. Smith, or any two or more of them, entered into a conspiracy to defraud the United States by making and causing to be made false return, weights and entries of coal shipped and loaded aboard transports of the United States army service and other Government ships purchasing coal at San Francisco Harbor, and some one or more of the overt acts charged were performed for the purpose of carrying into effect such conspiracy, then as to such defendants so conspiring your verdict must be guilty, although you believe them not guilty of the other criminal acts charged against them in the indictment.

If you believe from the evidence beyond a reasonable doubt that the defendants, James B. Smith, F. C. Mills, E. H. Mayer and Edward J. Smith, or any two or more of them, entered into a conspiracy to defraud the United States in the manner alleged in the indictment, then the amount out of which the United States has been or might have been defrauded as the result of such conspiracy, whether large or small, is entirely immaterial. [2024—1956]

And in this connection, if you believe from the evidence beyond a reasonable doubt that said defendants, or any two or more of them, are guilty of the conspiracy charged, it is immaterial that the amount out of which the United States Government has been or might have been defrauded is a small percentage

of the total amount of the duties shown by the defendants to have been paid by the Western Fuel Company to the United States upon foreign coal imported by it.

In order to find a verdict of guilty in this case against any two or more of the defendants, it is not essential that the Government should establish beyond a reasonable doubt that the defendants, or any two or more of them, entered into a conspiracy to defraud the United States by all of the acts alleged in the indictment. It is only necessary for the Government to prove that the defendants, or any two or more of them, entered into a conspiracy to defraud the United States by any one of the acts alleged in the indictment.

If, therefore, you believe from the evidence beyond a reasonable doubt that the defendants, James B. Smith, F. C. Mills, E. H. Mayer and Edward J. Smith, or any two or more of them, entered into a conspiracy to defraud the United States by any of said acts alleged in the indictment, and some overt act charged was performed for the purpose of carrying such conspiracy into effect, your verdict as to such defendants so conspiring must be guilty.

In order to return a verdict of guilty in this case it is not necessary for you to find that the conspiracy, if any, entered into by the defendants, or any two or more of them, was solely to defraud the United States Government, as alleged in the indictment.
[2025—1957]

But if you believe from the evidence beyond a reasonable doubt that the defendants, James B. Smith,

F. C. Mills, E. H. Mayer and Edward J. Smith, or any two or more of them, entered into a conspiracy only a part of which was to defraud the United States Government as charged in the indictment, and some one or more of the overt acts charged were performed for the purpose of carrying such conspiracy into effect, it is your duty to return a verdict of guilty as to such defendants so conspiring.

If you believe from the evidence beyond a reasonable doubt that the defendants, James B. Smith, F. C. Mills, E. H. Mayer and Edward J. Smith, or any two or more of them, entered into a conspiracy to defraud the United States in the manner alleged in the indictment, in that event the amount out of which the United States has been or might have been defrauded as the result of such conspiracy, whether large or small, is entirely immaterial.

If, therefore, you believe from the evidence beyond a reasonable doubt that said defendants, or any two or more of them, are guilty of the conspiracy charged, it is immaterial that the amount out of which the United States Government has been or might have been defrauded by the payment of drawback duties to the Pacific Mail Steamship Company through the fraudulent acts of the defendants, or any two or more of them guilty of the conspiracy, constitutes a small percentage of the total amount of duties paid by the Western Fuel Company to the United States Government during the period of time covered by the indictment.

While before you can find the defendants guilty

of the charge alleged in the indictments, the evidence must satisfy you as to their guilt beyond a reasonable doubt, yet you will not understand from this that the Government is called upon [2026—1958] to make a case free from any possible doubt, that is, to prove the defendants' guilt, or the guilt of some of them, to an unassailable demonstration. Such is not the law, for such proof is rarely obtainable in dealing with human transactions; in other words, the doubt which will justify your hesitation must be based in reason and arise upon the evidence, and not consist of a mere fanciful hesitation growing out of your sympathies or based upon something other than a fair and impartial consideration of the evidence in the case.

The term reasonable doubt means just what its language imports. To be a reasonable doubt it must be based upon reason. There is hardly anything relating to human affairs that is not open to some possible or fanciful or imaginary doubt. Mere possible or fanciful or imaginary doubts are not reasonable doubts.

But a reasonable doubt is defined to be that state of the case which, after an entire comparison of all the evidence, leaves the minds of the jury in that condition that they cannot say that they have an abiding conviction to a moral certainty of the truth of the charge.

You understand that it requires the concurrence of all of you to agree upon a verdict, if you so agree you will have such verdict signed by your foreman and returned into court, and if you agree upon a ver-

dict as to one or more of the defendants and fail to agree as to the others, you will return your verdict as to the ones upon whom you are able to agree.

Thereupon, the jury retired to deliberate upon a verdict, and, thereafter, returned into court their verdict, finding the defendants, J. L. Schmidt, Robert Bruce, Sidney V. Smith [2027—1959] and Edward J. Smith “not guilty,” and finding the defendants, James B. Smith, F. C. Mills and E. H. Mayer “guilty as charged.” Said verdict having been recorded by the clerk and read to the jury who confirmed the same, the Court thereupon discharged the jury from further consideration of this cause.

And the Court having duly set a day for pronouncing sentence upon the defendants, James B. Smith, F. C. Mills and E. H. Mayer, said defendants, and each of them, before sentence was pronounced upon them, respectively, presented to the Court the following motion for a new trial hereof and for an order of the Court vacating the verdict of the jury herein:

[Motion for a New Trial, etc.]

“In the District Court of the United States for the Northern District of California, First Division.

No. 5233.

UNITED STATES OF AMERICA,

Plaintiff,

vs.

JOHN L. HOWARD, et al.,

Defendants.

No. 5233.

UNITED STATES OF AMERICA,

Plaintiff,

vs.

JAMES B. SMITH, et al.,

Defendants.

Defendants herein, James B. Smith, Frederick C. Mills and Edward H. Mayer, do hereby move this Honorable Court for an order vacating the verdict of the jury herein, and granting to these defendants, and each of them, a new trial for the following causes, and each of them, materially affecting the substantial rights of these defendants and each of them:

1: Said verdict was contrary to the evidence adduced upon the trial hereof.

2: Said evidence was insufficient to justify said [2028—1960] verdict.

3: Said verdict was contrary to law.

4: During the course of the trial hereof the jury received evidence out of court other than that resulting from a view of the premises involved herein.

5: The jury was guilty of misconduct by which a fair and due consideration of the above-entitled cause was prevented.

6: The Court erred in deciding questions of law arising during the course of the trial hereof, which errors were duly excepted to.

7: Counsel for the Government was guilty of misconduct during the course of the trial hereof and upon the argument of said cause to the jury.

This motion is made upon the minutes of the Court, except as to the fourth and fifth grounds of motion as to which this motion is made upon oral testimony and upon affidavits to be hereafter served and filed.

Dated: San Francisco, California, February 28, 1914.

McCUTCHEN, OLNEY & WILLARD,
STANLEY MOORE,
A. P. BLACK and
SAMUEL KNIGHT,

Attorneys for Defendants."

Thereafter, and within the time allowed by law therefor, the following affidavits in support of the above recited motion for a new trial hereof were by the defendants duly served upon the plaintiff and its attorneys and filed with the Court and offered and received in evidence, to wit: [2029—1961]

[Affidavits in Support of Motion for New Trial.]

*In the United States District Court, in and for the
Northern District of California.*

5233.

UNITED STATES OF AMERICA,
Plaintiff,
vs.

JAMES B. SMITH, FREDERICK C. MILLS, and
E. H. MAYER,
Defendants.

State of California,
County of Alameda,—ss.

**Affidavit [of J. H. Bromberger, Dated March 3,
1914].**

J. H. Bromberger, being first duly sworn de-

poses and says: I was one of the jurors on the trial of the above-entitled case.

I am a regular reader of the San Francisco "Examiner" and during the time of the trial, I read such items and articles as appeared in it, concerning the case. I, also, read the editorials of December 17th and 18th, 1913, and February 11th, 1914, headed: "Coal Shipments and Atmosphere," "Scientific Discovery Ruined by Cupid," and "He Earned the Money," and they are attached to this affidavit.

J. H. BROMBERGER.

Subscribed and sworn to before me this 3d day of March, 1914.

[Seal]

F. H. BARTLETT,

Notary Public in and for the County of Alameda,
State of California. [2030—1962]

(The items and articles referred to in this affidavit and the editorials which were attached to this affidavit are set out at length in that certain affidavit of Elliott Johnson, *infra*, relating to the San Francisco "Examiner.")

[Title of Court and Cause.]

State and Northern District of California,
County of Alameda,—ss.

[Affidavit of J. H. Bromberger, Dated March 8,
1914.]

J. H. Bromberger, being first duly sworn deposes and says:

I was one of the trial jurors on the above-entitled case. A week or more before the end of the trial Mr. Fred Becker, another of the jurors, gave to a number

of the jurors, including myself, a copy of the Oakland "Tribune" containing a piece about the Sugar Cases in the East, and appearing in that part of the "Tribune" written by the "Knave." Mr. Becker showed the jurors the particular item and asked them to read it, saying it was a similar case the only difference being that one was sugar and the other coal.

According to my recollection this article was handed to Mr. Beans, Mr. Bollander, Mr. Gatley, and Mr. Long, and it may have been handed to others. I received and read the article myself before court had taken up, and it was handed to me either directly by Mr. Becker or through Mr. Gatly. In any event Mr. Becker was present because I saw him pointing out the article and remarking about the similarity in the cases.

The article was in the Oakland "Tribune" of Sunday, February 8, 1914, and read as follows: [2031—1963]

RECALLS SUGAR FRAUD HISTORY.

Winfred T. Denison, the new Secretary of the Interior for the Philippines, recalls some sugar fraud history in the East in his address at the Palace, a week ago, before the Commonwealth Club. The suit was against the Havemeyer Sugar Trust for sugar weighing frauds. Denison acted in this famous case as Assistant United States Attorney General. By manipulating the scales, it was shown the trust defrauded the Government in ten years out of four million five hundred thousand dollars in duties. As a result of the suit, it had to pay back this large sum to Uncle Sam. Denison said this and other evils

were due to the "spoils system." The trust gave regular contributions to both parties and expected a ten-fold return one way or another. The new Philippine official did not go into the details of the fraud suit, but if I recall correctly one of the men he sent to the penitentiary at Atlanta for two years, was Oliver Spitzer, who had been the superintendent of docks for the American Sugar Refining Company, commonly alluded to as the trust. After he got out Spitzer admitted the steel springs used to manipulate the scales on the dock were his invention. He said he had not confessed at his trial for two reasons. He thought nothing could happen to the trust, believing it so strong the Government could do nothing with it. He also remarked:

"I was advised to confess. I said the only confession I can make will carry me into a cemetery."

"You are referring to one of the trust magnates," asked the lawyer.

Spitzer said yes.

THE KNAVE.

J. H. BROMBERGER.

Subscribed and sworn to before me this 8th day of
March, 1914.

[Seal]

HENRY G. TARDY,

Notary Public in and for the County of Alameda,
State of California. [2032—1964]

[Title of Court and Cause.]

City and County of San Francisco,
State of California,—ss.

**Affidavit [of R. E. Herdman, Dated February 28,
1914].**

R. E. Herdman, being first duly sworn deposes and says: I was one of the jurors on the trial of the above-entitled case. I read the editorials in the San Francisco "Examiner" appearing on December 17th, 1913, and February 11th, 1914, and entitled: "Coal Shipments and Atmosphere," and "He Earned The Money," at the time of their appearance in the "Examiner." A copy of these editorials is attached to this affidavit.

R. E. HERDMAN.

Subscribed and sworn to before me this 28th day
of February, 1914.

[Seal]

C. B. SESSIONS,

Notary Public in and for the City and County of San
Francisco, State of California.

(The editorials referred to and which were attached to the above affidavit are set out at length in that certain affidavit of Elliott Johnson, *infra*, relating to the San Francisco "Examiner.") [2033—1965]

[Title of Court and Cause.]

State of California,
City and County of San Francisco.

Affidavit [of R. E. Herdman, Dated March 11, 1914.]

R. E. Herdman, being first duly sworn deposes and

says: I was one of the trial jurors on the above-entitled case.

After the case had been submitted to the jury and while we were in the jury-room, but before we had reached a verdict, Mr. Fred Becker, another of the jurors said to me: "Now, Mr. Herdman, I presume that you read the daily papers, the same as I do," and I told him that I read most of them every day.

R. E. HERDMAN.

Subscribed and sworn to before me this 11th day of March, 1914.

[Seal]

CHARLES R. HOLTON,

Notary Public in and for the City and County of San Francisco, State of California. [2034—1966]

[Title of Court and Cause.]

State and Northern District of California,
County of Alameda,—ss.

[Affidavit of William Long, Dated March 10, 1914.]

Wm. Long, being first duly sworn, deposes and says: I was one of the trial jurors in the above-entitled case. I am a regular reader of the San Francisco "Examiner" and was reading it throughout the time of the trial. I read the editorials in the "Examiner" of December 17, 1913, headed "Coal Shipments and Atmosphere," of December 18, 1913, headed "Scientific Discovery Ruined by Cupid," and of February 11, 1914, headed "He Earned The Money."

One day about a week before the trial ended I heard the "Colonel," as we all called Mr. T. F. Maher, talking about the sugar cases. This was out-

side in the hall and just before two o'clock. I was late that day and got there toward the last of the conversation. He was telling a number of the other jurors something about the case, and how they got one of the men involved, but this man kept his mouth shut and they could not get the others, but he said they convicted one of them.

I do not remember ever seeing the article in the Oakland "Tribune."

W. LONG.

Subscribed and sworn to before me this 10th day of March, 1914.

[Seal]

LOTTIE M. CONKLIN,
Notary Public in and for the County of Alameda,
State of California.

(The editorials referred to in the above affidavit are set out at length in that certain affidavit of Elliott Johnson, *infra*, relating to the San Francisco "Examiner.") [2035—1967]

